Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

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Contents of this Issue

Letters from Readers of Industrial Finishing 7
Tests That Fool You and Tests That Are Really Practical 12
Stock Control for Your Finishing Room 16
The Selection, Location and Operation of Industrial Ovens 19
Synthetic Finishes 21
Wood Finishing Stains 24
Emulsified Lacquers for Porous Materials 27
Metal Products Finishing (Fillers; Wrinkle Finish) 30
Cleanliness in Painting 34
Questions; Answers 38
What's New 48
To Use Color Effectively on Our Manufactured Products 67
Editorial 74

Finisher's Repair-it Kit 15
Lindol Prices Increased 23
Smoky Tone Maple 26
United Lacquer Moves Offices 26
Dolan Appoints Representative for Virginia Territory 26
Sandblast Equipment 28
New Books About Walnut 28
Complete Book Catalog 32
Bright Zinc Plating 32
Dust Arrester Test Book 32
Leafing Aluminum Finish 36
Shaking Paint in Can 36
Color Matching Trailer 43
Clean Spraying Air 44
Unlimited Color Effects on Wrinkle Finishes 46
For Testing Acid Content 46
Blast-Cleaning Unit 54
Sensible French Provincial Bedroom Furnishings 56
Sanding Color by Wire 58
Streamlined Cabinet 60
"Spotting Out" 60
Twin Dipping Machine in Action 62
Guide Lines and Pattern Masks 62
New Synthetic Finishes 64
So. California Representative for Murphy Varnish Co. 66
Sanding Emulsion 66
Automotive Finishing 72
The "A-Lac-O" Process 73
Air Regulators; Filters 73

"Classified Advertising" Section 79
Advertisers' Index 80

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Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Electric Oven

Can you give us the address of the manufacturer of the Sargent oven? We understand that they make a small electric oven. If this is not available can you tell us who makes such an item?—R. U. Co. (America's Leading Binocular House).

This is a product of the E. H. Sargent & Co., Chicago, Ill. Names and addresses of other manufacturers of electric ovens have been given to this inquirer, also.—Ed.

Solvent Still

We have seen the illustration of a Barnstead Solvent Recovery Still on page 32 of the May issue of INDUSTRIAL FINISHING, and as we are manufacturers in this country of high-class paint finishes of all descriptions, we would be very interested to receive full particulars of the equipment, together with some indication as to price.—Glasso Paint Products Ltd. . . . ENGLAND.

Graining Equipment

We would appreciate your sending us the names and addresses of manufacturers of graining equipment, if you have such information in your files. We look forward to receiving your INDUSTRIAL FINISHING magazine each month with a great deal of interest, as we find it very instructive. It is read by a number of people in our organization, including the foreman in our plant.—H. P. Co. (Wallboard).

I am interested in graining on flat wood surfaces. Could you please write me who makes stencils or plates that I could use for that purpose?—R. D.

In the May 1937 issue of INDUSTRIAL FINISHING, in your column entitled "Letters from Readers," the T. G. Corp. asks for data concerning an inexpensive method of graining wood furniture. Will you please give us the name and address of the party who made this inquiry? We have some interesting information for them.—A. C. Horn Co.

Whose Steel Boat?

Will you please advise us the name of the manufacturer of the welded stainless steel boat illustrated on pages 48 and 50, in the article on "Modern Boat Painting," in the May 1937 issue of INDUSTRIAL FINISHING. —M. B. Co. (Meters & Accessories).

It's a product of the Allegheny Steel Co., Brackenridge, Pa.—Ed.

Stencils Don't Lie Flat

We are having difficulty with our stencils which we are using on enamel articles. At present we are only using a press-board stencil, but

Old WORLD Mahogany

A NEW, rich and beautiful finish for mahogany that may also be used on birch.

Many of the suites being shown at the current markets are finished in this beautiful mahogany shade. The system for finishing requires these products: "S. Q." Filler — "S. Q." Toner—"S. Q." Glaze—final coat either lacquer or varnish.

The new "S. Q." Glazes work evenly—do not settle and are made in luxuriant shades to give the correct color and tone desired in the final finish.

Write for complete information regarding this New Finish.

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The Gilbert Spruance Co.
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PHILADELPHIA, PA.

this does not remain flat to the surface, with the result that the gun sprays under the stencil, leaving a 'cloudy effect on the trimming, or rather around the trimming. What would you suggest to overcome this? —O. & R. (Furniture Frames & Novelties).

Laboratory Ovens

In your February 1937 edition, on page 56, you have an article relative to laboratory ovens. We shall esteem it a favor if you will please get the makers of such ovens to communicate with us, quoting all particulars and prices both for gas and electric; voltage 200 A. C. — Eterna Chemical Products, Ltd. (ENGLAND).

Embossed Panels; Ovens

In the June 1937 issue (pages 8 and 10) the G. H. Co. writes about equipment for high-speed production of embossed panels. If you would care to pass their name to us, we will be glad to tell them about a job we recently installed for this work.

Also, we can assist the W. S. Co. (same issue, page 57) who inquired about the proper number of air changes in an oven, box type, if you will forward their name to us.—Despatch Oven Co., Minneapolis, Minn.

Burning-in Knives

Regarding C. B. Co's. inquiry about burning-in knives (June, page 7) we would appreciate knowing the name of this concern, as we feel we have something attractive to offer them in the way of our electric burning-in knife, and also our other patching knives.—Star Chemical Co., Chicago, Ill.

Striping Tool

Kindly give us the name of the paint striper described in your February 1937 issue, on page 38. We would also appreciate it if you could give us the names of any other reputable striping machine manufacturers.—E. R. Co.

In the February issue of your magazine, in the section devoted to review of "Improved Finishing Equipment," you have write-ups on the "Master Paint Striper" and also "Craftsman Striper." I am interest-

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ed in buying a mechanical striper and would appreciate it if you would send me the names and addresses of the manufacturers of these two stripers.—W. L.

The Master Paint Striper is a product of Wendell Mfg. Co., Chicago, Ill., and the Craftsman Striper is a product of Beugler Mfg. Co., Los Angeles, Calif.—Ed.

Graining by Stencil

Does anyone make stencils for graining so that I could use a spray machine? Please give me their names and addresses. On page 43 of Feb. 1937 issue, you have an item entitled "Photographic Silk Screen Stencil Plates." Please give me the name and address of the manufacturer.—C. M.

The name of the company you inquire about is Naz-Dar Co., Chicago, Ill.—Ed.

Silk Screen Tools

We are interested in receiving full information regarding the useful tools for the "Stencil Screen Cutter," as illustrated and described on pages 18 and 19 of Feb. 1937 issue of this magazine. — K. N. Co. (Lamps, Shades).

These tools are products of the Moore Air Brush Co., Chicago, Ill. —Ed.

Flock Finish

We are interested in receiving more information regarding the "flock finish" as mentioned in INDUSTRIAL FINISHING magazine, February issue, page 68. — T. P. Co. (Lamp Mfr.)

Norris Painting Machine

Kindly send us the name and address of the manufacturer of the "Norris Centrifugal Painting Machine" which is mentioned on page 55 of the June issue of INDUSTRIAL FINISHING.—O. V. Mfg. Co. (Electric Beverage and Food Cooler).

In the June issue of INDUSTRIAL FINISHING magazine, page 55, the question and answer division column, there is mention made of a Norris Painting Machine that applies paint

WHEN YOU NEED A MATCH-

an exact match—for build-up, color, and working qualities—

STILLE-YOUNG

can help you with the type of

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- LACQUERS
- FILLERS
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that you need for any particular finish.

THE STILLE-YOUNG CORPORATION

MANUFACTURERS

Chicago, Illinois

High Point, North Carolina

by centrifugal action. Will you kindly give us the name and address of the manufacturer of this Norris Painting Machine?—A. W. & Co. (Stamps, Dies, Signs).

Who makes the "Norris Painting Machine" referred to in an article on page 55, June issue of INDUSTRIAL FINISHING?—G. Y. Co. (Nameplates, etc.)

The machine is a product of the Electrical Painting Equipment Co., 247 Park Ave., New York, N. Y.—Ed.

Lacquer for Glass

I am searching for a finish suitable for use on glass. I was referred to the January issue of INDUSTRIAL FINISHING—item No. 226 on page 61, which is descriptive of a glass lacquer. Will you kindly send this literature?—M. A. H.

The manufacturer of item No. 226, as published in January 1937 issue, is the Arco Co., Cleveland, Ohio. —Ed.

Polished Bronze Effect

We would appreciate it if you or some of your readers could tell us of a finishing process whereby we could have a finish simulating polished bronze on aluminum die castings. What we wish is to have a lustrous color that will match polished bronze hardware.—U. T. A. Co. (Time Recording Locks).

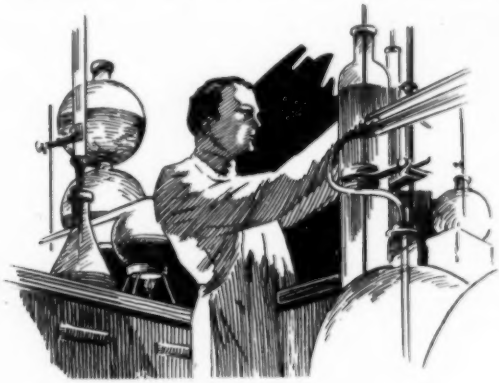
Table Top Finish

Please advise what to use on dining table tops, that would be heatproof and also give a hard surface. We have used ——— (a nationally known lacquer) which gave us a heatproof finish, but it left a soft surface, very easily scratched. We have also used shellac, which was hard but not heatproof.—H. A. Co. (Interior Decorators).

Mirror-Back Paint

In your May issue of INDUSTRIAL FINISHING (pages 8 and 10) there is an inquiry for a mirror-back paint. We would like to answer this in-

(Continued on page 78)



Tests That Fool You

AND TESTS THAT ARE REALLY PRACTICAL

by W. T. Smith

The author believes that some of us are going too far with certain "technical tests" which can be and sometimes are misleading as well as expensive, whereas a few simple tests will really give us the practical information desired.

THERE is a somewhat vague recollection of a quite spirited discussion, a year or two ago in INDUSTRIAL FINISHING, centering around or prompted by an excellent article entitled, I believe, "Send Us a Sample." Having, over a period of several years, collected, acquired, requested, or had thrust upon me, some 300 to 400 samples annually, of almost every conceivable type of organic finishing material from stain powders to glazing putty, I feel justified in raising, respectfully, the question of what we are going to do with it when they do "Send Us a Sample."

"Naturally," I think I hear some one say, "we're going to test it." Aye, there's the rub. The simple command, "Test it," with which a salesman or a purchasing agent or other official deposits a sample on your desk is as ambiguous as a woman's "No," and as vague as an office holders recollection of campaign promises.

"Test: Any critical trial and examination; trial; means of trial; a standard; judgment; distinction; . . . . to prove the truth or genuineness of by experiment; to try; . . . . " (Webster). Obviously even the above authority gives us an amply heterogenous bill of fare from which to arrive at the meat of just what a consumer's test of finishing material should consist.

Great Variety of Tests

Let us here state baldly that such tests literally range from a suspicious sniffing at the opened can to a complete quantitative analysis, pH factor, iodine number, polariscope readings, accelerated weathering, salt spray, sandblast abrasion, cold check, impact, scratch, print, and mandrel tests. As a technical man, it is the writer's conviction that the can sniffer is right as often as the others. To be sure, lest we be misunderstood, it is imperative in the interest of good business management to be certain that a purchased finishing material will satisfy the requirements of your budget, your processes and your merchandise. Taking everything on faith is foolish and usually expensive. Be from Missouri; but don't be like the man who was "easily convinced but he'd like to see the so and so who could do it."

Hundreds of consumers of finishing material proceed from year to year with no more assurance of its quality and uniformity than the foreman finisher's judgment and opinion—and after all 90% of any such tests are the result of someone's personal opinion, since to date no device has been perfected through which a material can be run and have the indicator point to "Approved" or "Rejected," as the case may be. On the contrary, many very large consumers bend over backward so far (in standing straight on the test question) that they have only

No, there's nothing like this.

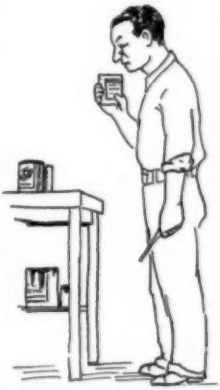
to pick up a handkerchief with their teeth to qualify as professional contortionists.

It is agreed, I'm sure, that the function of any test is simply and only to determine the suitability of a material for the purpose for which its purchase is contemplated. In considering the purchase of a pair of shoes you are concerned with their quality (as gauged by their price and the integrity of their maker) the fit, the color and style. You don't investigate the tanning process employed nor question the source of the linen in the thread, or the grade of steel in the nails.

If your appetite demands candy, you buy some that you like and which, by the simple expedient of eating some, you know agrees with you. You don't, I'm sure, demand or obtain for yourself in-

formation about the relative proportions of dextrose or sucrose, whether the pecans were grown in Georgia or Texas, or determine by experiment how high a piece of it will bounce when dropped 3-ft. onto a floor covered with a certain make of linoleum.

One executive, a very large consumer, in considering a furniture lacquer, asked consistently for a single piece of information—the specific gravity. Another wanted only to smell the wet film—in which the presence of a certain solvent, used in 90% of all lacquers, would condemn the material. An analyst in the chemical laboratory of a large buyer of finishing material, who has never engaged in manufacture or research in finishing materials, guarantees to analyze and duplicate with his own ingredients in 24 hours time, any lacquer submitted to him. Clever these Chinese!



Some tell this way.

Many and remarkable are the testing devices and tests which have been developed by chemists and physicists, and which probably are of inestimable value in research on organic finish films. Employment of optical micrometers, polariscopes, photomicrographs and exacting analyses in attempting to gauge the suitability of a lacquer for use on your furniture is like using an automatic lathe to sharpen a pencil.

Let us consider singly the factors for which materials are being tested today by consumers, together with the equipment used and the results obtained. Such elementary items as nature or type of material, color, reduction normally required, etc., are not included in this discussion.

Viscosity; Specific Gravity

Viscosity is a property easily determined and of interest to the prospective user. Use a flow cup, of which there are several, two in particular which are sufficiently well known as to require no description. A bubble tube will suffice. A surprisingly wide range of viscosities may be permitted; experience only will determine wherein your required spraying consistency falls. The use of the elaborate torsion type viscosimeters is unnecessary.

Specific gravity is interesting only as an assurance of uniformity in routine shipments of a given material. It may be determined by either a hydrometer or pycnometer. The hydrometer method is usually amply accurate.

Total Solids

Total solids represents one of the favorites of the pseudo-scientists, and has been prolific of more discussion, dissention and misunderstanding than the war debts. No two analysts agree on the procedure to be used. A determination on the same material by six different individuals usually results in six different results. True, one operator using the same procedure day after day on many samples, as in a control labora-

tory, will get consistent and fairly accurate results. When the consumer checks with several suppliers, all using different methods under different conditions, the argument invoked over-weighs the importance of the test.

Assuming the total solids to be such and so, the presence of cer-

In buying shoes you don't insist upon knowing all about the tanning process.

tain resins, volatile plasticisers, the viscosity, the solvency of thinners used, the type and quantity of active solvents present, atmospheric conditions, and finally the skill and experience of the operator applying the material—all affect the final result when the material is applied to the work, which, after all, is what we are interested in.

Run total solids if you insist, but don't approve or reject a material on the strength of it, and don't quibble with the supplier about two-tenths (0.2) of one percent on the result.

Drying Time

Drying time is of importance and can be determined in general only under conditions representative of your own production practice. In the case of baking materials, this is fairly simple, but air-drying materials present another problem. True, you can dry the sample in the drying room where your routine finished pieces are dried, and if you are fortunate enough—or make a habit of recording exact meteorological data and select a mean average day—you may get a fairly accurate result. If you desire absolute accuracy it will be necessary to apply a standard uniform thickness of film under exactly standard conditions as pertains to air pressure, speed of withdrawal, etc., according to method and under exactly standard conditions of temperature, relative humidity and air circulation.

The equipment necessary for all this hardly seems justified. If you can get a drying time of from 1½ to 2½ hours on a material in which you want a 2-hour drying time, be content and be assured that you cannot come consistently closer on a laboratory test practical for a consumer to apply.

(To be continued)

Finisher's Repair-it Kit

V. J. Dolan & Co., 1830 N. Laramie Ave., Chicago, Ill., announces a practical finisher's repair-it kit containing materials, tools and instructions for use in repairing damaged finishes and refinishing furniture, pianos, cabinet work, fixtures, etc. The very attractive and durable kit contains over 30 different items, including stains, fillers, sealers, lacquers, shellacs, varnishes, lacquer and varnish removers, shellac sticks, wood cement, wax, pumice stone, fine and coarse sandpaper, alcohol, benzine, burning-in knife, alcohol lamp, brushes, polishing cloths, rubbing oils, stain-powders, solvents, japans, linseed oil and many others.

Stock Control

FOR YOUR FINISHING ROOM

by Greggs Phillips

How to estimate your finishing requirements and order materials in sufficient quantities to keep the finishing department stocked up (but not over-stocked) at all times. The system automatically prevents any item in stock from going below a specified minimum.

THE EDITORIAL COLUMN of this publication recently predicted that "product engineering should continue at top speed during 1937, with product finishing a very important factor in practically every line." When product engineering is mentioned in connection with industrial finishing, attention is focused on the production problems of the new product design and methods permitting its production at minimum cost. The design goes into production after the supply and costs of the new and other necessary materials have been thoroughly investigated. In many cases the new design will take the same lacquer, varnish or enamel that has been in use from week to week—but has the continuity of the finish supply for the season been given the same careful thought?

Finish is essentially just as much of a raw material as is the wood or metal from which the article is made. An unfinished article, unless sold as such, has no sales appeal because it lacks the one ingredient to complete its utility—and unfinished, it would have no more chance of being shipped to a customer than a chair minus one leg. Why are we so prone to forget to order our finishes with the same degree of forethought that enters into the purchases of other raw materials? The answer may be because the finish is the smallest bulk of our inventory. One drum of varnish may look comparatively insignificant, yet its contents may be spread over a week's production of one type or style of furniture going through the factory.

Ordering Materials to Meet Estimated Requirements

In the wave of unprecedented business earlier this year, many finish consumers complained about their deliveries. It is impossible for a finish manufacturer to give one customer preferred attention at the expense of jeopardizing his position with others. Consequently many consumers have adopted divers plans in anticipation of their finishing re-

quirements. A well thought-out system of ordering lacquer, varnish or enamels will require close liason between sales, production and purchasing departments, but if well planned it will result in providing an adequate supply of material almost automatically. With a large consumer of finishes there will necessarily be many loose ends of detail to be tied together, but irrespective of size the first step in a well organized system is to determine what the finish requirements will be.

Correlation of production and purchasing department records will show, on the basis of past performance, the number of finish gallons consumed per 100 or per 1000 pieces of a single style or pattern. Where a rigid cost-accounting system is kept, this figure may be on record. Multiplying this figure, which may be called *basic finish consumption*, by the production schedule for the next week or month, the required finish gallons becomes a known factor. The *basic finish consumption* should be determined for each style or piece scheduled for production, and from a summation of the determined requirement for each item of production, the total number of gallons needed for the next month or season can be forecasted.

Store Room Stock Replacement Time

The next factor to be determined will be *store room stock*. The decision as to the amount of *store room stock* will depend upon a number of variables, one of important consideration being the amount of dollar investment. Other variables determining the stock will be the storage space available and, although last mentioned but of equal importance, the average time required for a replacement lot of any one finish item. The *replacement time* can be determined from purchasing department records and should include the total number of days elapsing between the date on which the items have been requisitioned by the finishing foreman, and the date on which the respective goods have arrived. All this data can be taken from the records.

The accompanying table gives representative figures for the requirements of a moderately-sized furniture factory. The last column showing *suggested minimum stock* has taken into consideration the extent of the finish investment, space facility for storage, and *replacement time*. It does not show the quantities to be purchased at one time, but by alter-

ITEM	Estimated Requirements for 6 Months (gallons)	Average Weekly Consumption (gallons)	How the Material Is Purchased	Average Replacement Time (days)	Suggested Quantity of Minimum Stock
Lacquer	1640	63	55-gal.drums	9	1 drum
Sealer	1280	49	55-gal.drums	8	1 drum
Stain	360	14	5-gal.cans	13	4 5-gal.cans
Thinner	400	15	55-gal.drums	5	¼ drum
Varnish	320	12	5-gal.cans	11	2 5-gal.cans

nating the purchases of lacquer, for example, between one and two drums there would always be an adequate amount on hand. Similarly, for the varnish, one lot of two 5-gallon cans, followed on the next purchase by three cans, and this cycle repeated, would assure a sufficient amount at all times. The system cannot be considered as 100% automatic because the smoothness with which it functions depends upon a human element. Someone in the organization, either finishing foreman or stock-room clerk, would have to be charged with the inviolable responsibility of telling the "P. A." when the factory had started tapping the last drum of sealer, or when the men had taken out the first of the two last cans of varnish. The finishing department foreman can be counted on to cooperate in this program because his department, being the one to put the last touch to the production, is usually p u s h e d harder than any other in getting out the work.

To Avoid Over-Stocking

In the case of a shop using materials having peculiar storage characteristics, p r e c a u t i o n s should be taken to guard against over-stocking. This can happen innocently with airdrying synthetic-resin enamels or with synthetic varnishes. For example, a 55-gallon drum lot of synthetic varnish is purchased for the purpose of saving the price difference between drums and cans. If no information is at hand as a result of actual experience in fairly long storage of these types of finishes, or any other finish which might be believed to be peculiar in its storage characteristics, the supplier will be very glad to give his suggestions on the stocking program. Or, instead of throwing the 5-gallon cans away as they are emptied, they could be cleaned out and drum shipments of such materials could be put into those cans when the d r u m is first tapped. By doing this the savings afforded by purchasing drum lots can be safely effected, as the synthetics will not skin over so long as they are kept in full containers without an air space above the liquid level.

Average Weekly or Monthly Consumption

While this system has its complications in getting set up, it is accurate for exacting production schedules. Another somewhat simpler system, and preferred by small organizations with stabilized finish requirements, can be set up merely from a review of purchasing department records to determine the total number of gallons or drums of each item purchased over any past period, and from this the average weekly or monthly consumption can be determined. Substituting this in place of the *estimated 6-month requirement*, as shown in the foregoing table, and making a note of other pertinent data, the same ultimate result of automatic supply can be secured.

Syncro-mesh transmissions in automobiles enable us to get away from the traffic light much faster than was possible ten years ago. A well-regulated system of finish supply will prevent the embarassment of using emergency finishes which might result in a challenge to the reputed high quality of a finished article.

THE SELECTION, LOCATION AND OPERATION OF

Industrial Ovens

by Howard Ford
Foreman Finisher

THE DRYING OR BAKING oven for bake-finishing seems to be a small matter when one speaks of finishing, but it is really an important factor in the production line. Inasmuch as the trend of finishing is now turning to the use of more synthetic materials, an oven that can bake the finish on various products effectively and economically is one of the most practical items in the line. There are several types of ovens available, so the manufacturer can obtain one to exactly suit his particular line of work.

Safety from Fire Hazard

So far as I know, the most popular and uptodate oven is the indirect heat type . . . . thermostatically controlled. Why? Just for safety sake, and because you are able to set your heat so as to retain that same degree of temperature each and every hour. It operates satisfactorily and it is also foolproof, for when the gas line does not function right the gas is automatically shut off by the thermostat, therefore eliminating any chance of an explosion, or of gas escaping from the heating unit to the oven. Then your heating unit is separate from your oven so if you have any dripping of excess material, or fumes, this doesn't come in open contact with the flames. Here is one way of stopping a lot of finishing-room fires, as it eliminates the fire hazard of the material. These modern ovens can be built so that your heating unit is above the floor, therefore, keeping your heater unit by itself and out of the way, and also giving you that much more space for a larger oven. So in general, it is safer all around for the finishing room.

Moving Work Through Oven

Now for the different types of indirectly-heated ovens. There is a type for each kind of work—for overhead conveyors, floor conveyors and for center conveyors. For the manufacturer who uses portable racks or trucks, I would suggest the type of oven that has doors at both ends. The newer ovens have a unit to draw all fumes out when the work is first put in, and as the work passes further along the line, the material comes in contact with the direct heat. All the excess fumes from the solvent are taken away, therefore giving the clear material the drying heat it needs for adhesion. A track (of channel iron) for the portable racks or

truck wheels can be installed in the dryer so that the racks can be run straight through with no trouble. For the average job on racks, when using a synthetic which will dry solid in one hour, you may run in and out every 15 minutes, therefore keeping the products going through continuously.

I would suggest that where items are to be packed within half an hour after drying, a cooling tunnel be built alongside of the oven so the racks of bake-finished items may pass through it. An electric fan should be placed in the cooling room and it should be directed so the flow of cool air will strike the racks. This will cool the items in a short time, so the racks and units can be kept moving right along.

Conveyor Type of Oven

In the case of an oven for the manufacturer of cans, pails or drums or any items that can be put through with a conveyor, I would suggest using the center-type of conveyor oven, which has the endless chain system. This kind of oven is practical where it can be loaded directly from the spray line, either by conveyor or by hand. This conveyor oven will have doors at both ends so it can be loaded and unloaded easily and can be kept going at a good rate of speed . . . . and can be stepped up to meet production needs. Such an oven can be operated at a reasonable cost and can be adjusted to save gas cost to the users. These ovens are the type for the average manufacturer. The very large conveyor type ovens, such as those in the automobile production plants, are generally designed and built to suit the special production requirements of those companies.

Location of Oven

The proper location for the oven is near the end of the spray line, where the finished items are in line and where the racks or trucks have to be handled the least, therefore saving the handling of items where it is not necessary. Also, when the items are dry they can be loaded or packed and sent out of the department without interfering with the unfinished items and the spray line; and they can be kept away from the dust or fumes from the spray booths.

New Ovens Save Production Costs

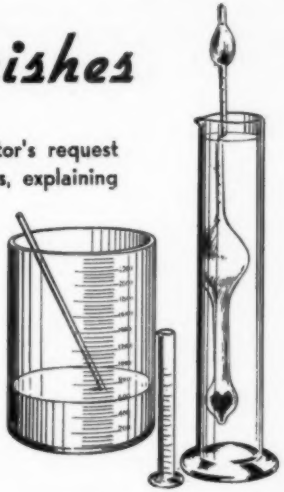
A number of manufacturers, who now have obsolete ovens would be surprised to see how these new ovens can increase their production and reduce time in drying, as well as reduce the labor in handling items from spray booth to oven. They would also find that these improved ovens occupy very little more space than their present ovens.

I know of an Illinois manufacturer who installed a new indirect-heat oven last year, who at present would be losing up to $100,000 this year if he had retained his old oven. All oven companies will be glad to look over your plant and give you the latest ideas and estimates on an oven to suit your needs.

A manufacturer should think twice before he commits himself to buying equipment for larger production. He must also have an oven to take care of it, or he will find that his production line will be quite seriously crippled.

Synthetic Finishes

This article is in response to the Editor's request for "something about synthetic finishes, explaining them so that the users—all the way from top executives to foreman finishers—will be better informed about these new finishes . . . . . and therefore better able to understand just what the material manufacturers' salemen or service men are talking about when they 'talk up' synthetics."



by H. R. Stewart

IT IS THE AIM of the author to describe the composition and general properties of the various types of synthetic finishes and, at the same time, not overburden the reader with an excess of technical data.

Term Synthetic Too General

It is believed that when the term "Synthetic Finish" is used it brings to the mind of the listener a picture of a finish produced by the quick air-drying, or low temperature short-bake, alkyd enamels. However, Webster's Dictionary defines "Synthetic" as the "Art or process of making or 'building up' a compound by the union of simpler compounds or of its elements." Because of this meaning and the broad scope encompassed by it, there are any number of finishes, besides the alkyds, which can be and have been sold under the title of "Synthetic Fnish."

If one were to become highly technical in classifying various finishes it would be possible to cause much confusion and misunderstanding. Ester gum finishes could be grouped within the synthetic category, as the gum is produced by the reaction of abietic acid (in rosin) with glycerine under the influence of heat. At first this reaction was carried out within the ordinary varnish kettles. This produced a partially reacted non-uniform product.

The need for more uniformity and lower acid content brought about the development of the pressure still method, and the completely reacted uniform product available at the present time. The ester gum is then cooked with various oils and drying salts and

is thinned to the proper consistency to make the desired varnish vehicle. The older types of spar varnish and spar enamels are examples of such products. These materials show better than average waterproofness and durability. They dry out of dust in six to eight hours and can be handled in 12 to 18 hours.

Two Types of True Synthetics

The true synthetics are of two general classifications. In one type only the gum portion is made synthetically and later cooked with various oils and driers, as are the ester-gum liquids. The other type consists of those liquids in which the entire solid portion is made synthetically. To the first type belong the "phenolics" and their variations, such as the "maleics," developed to have better color retention. The second type is comprised of the "alkyds."

The commercial use of these materials is quite recent. Along towards the middle of the 1920's the paint industry began to awaken to the advantages of a new type of varnish resin. The resin had been introduced to this country from Germany. It was composed of about 10% phenol-formaldehyde condensation product, the balance being rosin or rosin ester. The great advantage obtained from the use of this gum was in its acceleration of the drying time of varnishes made from it. Also, in the increased durability it gave to the dried film, even in comparatively short-oil liquids. The main disadvantage was the tendency of these coatings to "after-yellow." These gums are the ones that gave us our original "4-hour" varnishes and enamels. They dried to recoat or handle in four to six hours, and objects coated with them could be packed for shipment after an overnight dry.

Formulated to Meet Various Requirements

After the advent of these original resins the development of synthetic materials was quite rapid. By varying the ingredients entering into the chemical reaction to produce these gums, and through the use of greater scientific control, there have been developed uniform 100% phenolic resins and modified resins to fit practically any requirement that could be demanded of them. The "after-yellowing" tendency has been reduced, and with some types completely eliminated. Also, these resins are the ones used in producing those products that withstand the most severe chemical tests. Caustic, acids and alcohol, which rapidly break down the older type finishes, have little or no effect upon them. They are also used to produce the extremely water-resistant finishes, withstanding the severest cold and boiling-water tests. The drying time of these materials varies considerably, being dependent upon the type of resin used, the oil length, and kind of oil; all of which are determined by the service to which the finished product will be subjected. These products are quite outstanding for their durability and wear-resistance. Products of this type are primarily for air-drying use, but can be readily adapted to force-drying or baking schedules.

Alkyd or Glycerol-Phthalate Resins

The next step in the commercial development of synthetics was the

alkyd or glycerol-phthalate resins. These are produced by the chemical reaction of glycerine with phthallic acid or anhydride in the presence of an oil or oil acid, and take place under an exact control of temperature and time of reaction. These raw materials can produce an infinite number of products, not only from varying the proportions of the different ingredients entering into the reaction but from substituting other polyhydric alcohols for the glycerine and other polybasic acids for the phthallic acid. Also, any oil or oil acid may be used to give various properties to the finished product.

Excellent Bake Finishes—And Good Air-Dryers Too

These materials reveal their most outstanding qualities when they are used as bake finishes. They take a short low temperature bake and produce a tough high-gloss durable coating. The pure alkyds—those that have not been combined or modified with other materials—show the maximum durability and, on baking, exhibit remarkable adhesion to metal. They are extremely marproof and produce a porcelain-like finish. When they are used for air-drying purposes they lose some of these properties. However, they do produce a high-gloss durable film but they are slow to harden through, even though they are dry to touch and handle. At times, to overcome this slowness to harden through, some phenolics are incorporated during the reaction period. This gives a much faster air-drying product, better water resistance, and a harder finish, but tends to reduce the durability of the finished goods in direct proportion to the quantity of modifying ingredient added. The alkyds all show excellent color retention. They not only resist the action of ultra-violet light and "after-yellowing" by themselves, but impart this property to products that have relatively small quantities of alkyds added to them. It is due to this property that they have found a welcome reception for use in pyroxylin lacquers to stand exterior exposure. Most of the failure of clear and low-pigmented pyroxylin lacquer being largely due to the breaking down of the nitro-cellulose by ultra-violet light. Another field in which they are rapidly finding favor is to "fortify" paints for exterior use.

It is not only possible to obtain materials made wholly from any one of these types, but if desired, they can be a combination of all. The quality desired and the use to which they are to be put are the determining factors for such combinations.

Lindol Prices Increased

A letter from the Celluloid Corp., 10 E. 40th St., New York, N. Y., announces that "the prices of tricresyl phosphate (Lindol) have been advanced . . . . due to the increased cost of cresylic acid which is a major raw material in the manufacture of the product."

Price quotations, as of June 15, are shown in the accompanying table:

Quantities Ordered	Lindol M. P. (Chemically pure)	Lindol-A (Technical)	Lindol-C (Technical)
Carload	$.36 per lb.	$.26½ per lb.	$.24½ per lb.
500-lbs. (one drum and over)	.39 per lb.	.27 per lb.	.25 per lb.
5-gal. cans	.42 per lb.	.30 per lb.	.28 per lb.
Less than 5-gal. cans	.53 per lb.	.41 per lb.	.39 per lb.

Wood Finishing Stains

by Thos. E. O'Connor
and Paul J. Murdoch*

THE PRINCIPAL types of stains used by wood finishers in the finishing of furniture, fixtures and various wood products that are finished natural and in tinted tones, include water stains, non-grain-raising stains, oil stains and pigment wiping stains.

Water Type Stains

Water stains are composed of various colored organic substances that are soluble in water. They are usually brushed on, although they may be dipped or sprayed. Dipping, unless it is done quickly, is likely to allow the wood to soak up too much water, which may damage glued joints and thin veneers, and raise the surface grain of the wood excessively. All water stains raise the grain of the wood, and for this reason the stained work must be allowed to dry at least overnight; then a wash coat of sealer or shellac must be applied, after which the entire surface must be resanded to a satisfactory degree of smoothness before filling can be done. The color of water stains is considered permanent, and because of this they have been used for many years in spite of the extra time and labor involved in sealing and sanding the stained surfaces afterward—and the danger of sanding through the thin coat of sealer.

Non-Grain-Raising Stains

The non-grain-raising stains are composed of the same type of coloring materials as are used in water stains. They are generally applied by spraying. The materials used to put these stains in solution are usually di-ethylene glycol, Carbitol, and methanol. Di-ethylene glycol is a non-drying oily liquid that is only a partial solvent for the dyes, therefore when this liquid is used the stain generally lacks the strength that it would have when water is the solvent. Also, the di-ethylene glycol, being an oily substance and non-drying, the finisher is limited as to the amount he can safely use on the wood before its presence affects the drying of the shellac or sealer. Most of the stains that are known as "non-grain-raising" are not as permanent as water stains. However, one of their good features is their ability to uniform cheap woods. This is generally accomplished by first applying a weak stain solution of a suitable shade to uniform the light, off-color streaks or areas; then follows an application of full strength stain over the entire surface.

While these stains are called

*Chief Chemist, T. E. O'Connor Co.

"non-grain-raising," all of those with which the authors are acquainted, do raise the grain of the wood slightly, although not nearly as much as water stains and, as a result, the stained surfaces require sealing and light sanding afterward. Their range of colors is somewhat limited because all light-fast colors are not soluble in the di-ethylene glycol, Carbitol, and methanol combinations.

Oil Stains

Oil stains have been used in great quantities for many years and, like the two other stains previously mentioned, they have their place and will probably continue to be used in wood finishing. They may be applied by brushing spraying or dipping. These stains are usually dissolved in benzol (a toxic coal-tar distillate), then reduced out further with solvent naphtha (also a coal-tar distillate) and finally reduced with ordinary naphtha for use. A great range of colors is obtainable, including many bright shades—and too, such materials as asphaltum can be added to them to increase their color fastness and to give them some sealing properties.

Most oil stains bleed more or less under either shellac, lacquer or varnish sealer—and some of them usually have a deleterious effect on the drying of the different types of sealers used. Practically all stains of this type fade when exposed to light.

Pigment Wiping Stains

Originally, the production man made pigment wiping stains by reducing colors ground in oil and japan with benzine. Later the stain manufacturer started to reduce the japan colors and sell them reduced to the consumer. In the early stains of this type the colors were generally dead looking, not many colors could be had, and the working properties of the stains, in either brushing or spraying, were unsatisfactory. The wiping operation to remove excess color was generally difficult and not always entirely satisfactory. Users found that, for best results, it was necessary for the stained surfaces to dry at least over night before the sealing coat could be applied.

In an attempt to improve the color depth and richness of pigment stains, asphaltum and oil-soluble anilines were used. The addition of these ingredients often caused bleeding into the sealers, did not decrease the drying time, caused some bleaching and fading, and increased the tendency of the stain to "take" darker in spots, due to the non-uniform penetration obtained. Because of these and certain other complaints registered against them, many consumers were ready to discard them entirely and be content with the results they could obtain from the other types of stains.

Improved Stain Developed

After continued research and development, a new type of pigment wiping stain was perfected which has materially raised the standard and quality of such stains, and which has many desirable properties. This new development in stains possesses a combination of the desirable properties of the water, oil and pigment stains, and eliminates certain objectionable features of all of the older type stains. These new types of pigment stains are non-toxic, have remarkable brilliance of color, and they do not

raise the grain of the wood. They have sealing and filling properties, are easy and economical to wipe; and in the wiping process, glazing or two-toning effects may be obtained. Naphtha is the only solvent used for reducing them.

The dipping or hosing methods of applying these stains really give the consumer a low-priced staining operation. Putting in and taking out articles in the process of dipping provides sufficient agitation to keep the stain in perfect suspension. When left to stand in the dip tank overnight, a very light mixing next day will put the stain in condition for use.

SMOKY TONE MAPLE

All of the charm of the Early American period of furniture design is captured in this grouping of smoky tone maple, shown at the American Furniture Mart in July, 1937. The tiny heart motifs on the mirror and chair back, and the graceful simple charm of these pieces has helped to make this type of furniture popular in all sections of the country. Photograph, courtesy of the American Furniture Mart, Chicago, Ill.

After the articles have been stained (by any method of application desired) it is necessary to wipe off the excess with a rag. This is a beneficial process because it enables the finisher to uniform, two-tone and even glaze by this operation.

A great range of colors has been developed. All shades are permanent and carry real color depth. They will not bleed and they dry rapidly — permitting, with good drying conditions, the application of shellac, lacquer or varnish sealer within approximately one hour.

Wood fillers have been developed that have the same characteristics, namely: rich colors, all shades, never settle hard, seal as well as fill, and will produce two-tone colors if desired.

Glazes embodying the same principles as the pigment stains are also produced, giving excellent working and drying properties. The color effects that can be had are practically unlimited.

United Lacquer Moves Offices

An announcement from the United Lacquer Mfg. Corp. states that "for the purpose of improving operating efficiency, we have moved our executive offices from Linden, N. J., to 67 W. 44th St., New York City." The factory remains at Linden, N. J.

Dolan Appoints Representative for Virginia Territory

The V. J. Dolan & Co., Chicago, Ill., announces that, "We have employed a new man in the Virginia territory, and he is one of the 'old timers' in the furniture line down there, having been active for the past 30 to 35 years. Our new representative is Mr. A. Newton Carroll of Martinsville, Va., who will make his headquarters in Martinsville and will handle the exclusive sales in Virginia, and will cooperate with Mr. E. W. Holton in handling North Carolina."

Emulsified Lacquers

FOR POROUS MATERIALS

The coating or finishing of porous materials presents several new and interesting angles. . . .

by L. Jay Smith
Roxalin Flexible Lacquer Co.

POROUS MATERIALS can be effectively coated by the use of a new finish which will form a flexible, adherent and attractive surface. This material is a lacquer emulsion (emulsified lacquer).

Constitution and Properties of Emulsified Lacquers

A lacquer emulsion consists of an extremely viscous, dough-like lacquer base dispersed in a relatively small percentage of water. It has a very high solids content (film forming) and it also permits the use of nitro-cellulose of much higher viscosity, which in turn produces a film of even greater strength.

Lacquer emulsions can be applied by the ordinary shop methods, such as machine coating, spraying, brushing, dipping, swabbing or by the use of a spreader blade known to the trade as a "slicker."

The cost of the emulsified lacquer will vary, naturally, with the formula. Usually, due to its higher solids content, a ready-to-use emulsion will cost more per gallon than a corresponding solution type lacquer. Per pound of solids applied, however, it is very likely to cost less.

Frequently, less emulsion than ordinary lacquer is required for the same job. In place of the usual expensive solvent thinners used for lacquers, the emulsion can be thinned with a very small quantity of water.

The writer does not hold that emulsified lacquer is a cure-all or that it will displace other lacquers. It can, however, be used to finish many types of products which, in the past, have been considered unsuitable or uneconomical to finish, and in some cases, it will also improve the existing finish.

Almost any type of lacquer with the correct properties and merits for specific jobs can be adapted to emulsification for the following purposes:

1) To produce a finishing material that will permit the application of a heavy single coat.

2) To produce a surface coating that will not be absorbed by a porous material.

Merits of Lacquer Emulsions

Experience has shown that a much thicker coating of lacquer emulsion can be applied by the

spray gun without sagging than is possible in any application method, principally because of the higher solids content of the emulsion. The dry film from an emulsion will be heavier than the dried film from a usual lacquer of the same wet thickness.

Lacquer emulsions can be made in great variety. Formulas can be altered by blending a lacquer emulsion with an emulsion of another material, such as wax.

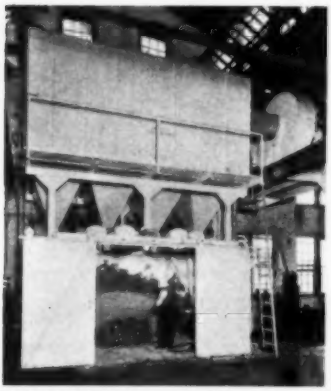
Lacquer emulsions of widely different properties can be blended to produce a final film equal to that of a solution composed of the combined ingredients. For example, it is possible to add resin solutions by stirring them into the emulsion. Wall board and papier mache, which is to be covered with paint or varnish, will absorb practically none of these materials if first given a light sizing coat of emulsified lacquer.

Carefully selected dye solution may be added at the time of use, making possible a wide variety of colors from one base material.

By the use of emulsions, it is possible to apply a surface film on materials of extreme porosity. Take, as a case in point, blotting paper, which, if unsized, would readily absorb the usual lacquer solution.

The presence of water in emulsions does not imply that dried films from emulsified lacquers are different in any aspect from typical lacquer films. They possess gloss, flexibility and adhesion in ratio to the skill with which they have been formulated.

SANDBLAST EQUIPMENT



Modern sandblast room and dust arrester installation, with the operator working inside, "which has met with very favorable comment not only from the user but people who have looked at the unit." The room and dust arrester were installed in a foundry where space was limited, the problem being satisfactorily solved by mounting the arrester and fan directly above the sandblast room as illustrated. Photograph, courtesy of The Macleod Co.

New Books About Walnut

Two very attractive and informative booklets about walnut woods and veneers, illustrating their use in furniture and interior woodwork, have been recently released by the American Walnut Mfrs. Assn., 616 S. Michigan Blvd., Chicago, Ill. One booklet containing 18 pages 11x8½-in., is appropriately titled "Walnut in the Art of Gracious Living." It shows several remarkable full-colored illustrations of completely furnished rooms done in walnut and outfitted in beautiful walnut furniture. Another feature of this booklet is the drawings of the various period and modern styles of furniture, with explanations about the distinguishing characteristics of these period styles.

The other booklet, 36 pages 8½x11-in., is the eighth edition of "The Story of American Walnut." It is profusely illustrated with pictures of the finest furniture and interior woodwork in walnut; also pictures of various figured walnut veneers. It contains much valuable information about walnut wood and its various uses in different industries.

Both booklets should be in the library of every finisher, designer, manufacturer and user of fine furniture or woodwork.

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Metal Products Finishing

(FILLERS; WRINKLE FINISH)

by Michael Forchione

THE USE OF METAL filler plays an important part in the finishing of pressed metal products. The surface of the metal, as it comes to the finishing room, is bound to have places that need filling. No matter how carefully the steel is handled in fabricating, such things as rust pits, dinges, scratches, bent places, etc., must be hammered out, sanded, filed, or ground down, which necessarily calls for filling afterward. The surface may have to be filled from one to three or four times. Filler should not be knifed into too large a depression because, in the baking, it will blister; or if it does look all right in production, it will sometimes crack when it "gets out in the field."

It can be readily seen that filling is an important part of finishing and should be handled as such. Some manufacturers will say that filling naturally increases the cost. On the other hand, is it not cheaper to fill than to make the piece over again?

Baked Fillers

Filler should be knifed on the surface of metal with a 4-in. putty knife; then baked for at least an hour at a temperature of 225° to 250° F.; then it should be sanded and primed. Then follows another bake, after which it is sanded and the finish coat is applied.

Of course, I assume that the one filling is enough. If not, then the article being filled should be sanded, then refilled, baked again, then primed and finished.

There is only one type of filler that I know of that will fill a deep depression or connecting crack in steel and hold without cracking or falling out by shrinking. . . . In an emergency I have made and used the old homemade Swedish filler—made of whiting, plaster of paris, boiled linseed oil, a little varnish and fat enamel, and have obtained good results with it.

Pyroxylin Fillers

Up till now I have been writing about baking fillers. However there are good pyroxylin fillers on the market, although they should be used only on surfaces that have already been primed and are ready to be lacquered; or on pieces that have been lacquered and then, in the inspection, a defect crops out that only needs filling—where it would be impractical to use a baking filler, as the bake would force out the oils in the lacquer and make a messy refinishing job.

Pyroxylin filler cannot be beat

Case histories like this one are worth noting: A-P Products were introduced in the lean year of 1931. Today, Automatic Products Co., Milwaukee, Wis., is a leader in its field. Linked with the phenomenal success of A-P Controls is S-W Kem Art Metal Finish—adopted as recommended by the S-W Finish Engineer. This beautiful one coat textured finish combines eye appeal and durability with quick, easy and economical handling by the finisher. Perhaps this, or some other S-W "engineered" finish will boost *your* sales and profits. Write us about your finishing needs or problems. No obligation. The Sherwin-Williams Co., Cleveland, O., and principal cities.

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

for filling minor defects that are sometimes missed in the first filling; however, care should be taken to allow enough time for this type of filler to dry completely hard. Otherwise the filler cannot be properly feather-edged, with the result that the finish coat will show high spots that will be hard to get rid of if the workman sprays on several coats of lacquer without noticing it.

Wrinkle Finishes

There is now on the market a finish that is a boon to finishers, in that it requires no preliminary filling. It covers and hides defects of the metal, and at the same time it provides a tough durable surface coat that will last for years. I refer to the crinkle, morocco, wrinkle, or other names under which this finish may go.

This finish is applied by spraying. It does not require any special equipment, prime coat, or special ovens in which to bake it. The secret of having success with this finish depends a lot on the sprayer, as it has to be applied evenly.

The material is usually a synthetic and requires no thinning on the part of the finisher. It can be obtained in almost any color desirable. I said that this finish requires no prime coat. However, in some cases it may be desirable to either dip or spray a harmonizing color on the inside (of the product, as a box, container, etc.) with a cheaper smooth finish. This would naturally cut the cost of finishing.

Silk screen process work offers a convenient and economical method of solving many decorative problems in finishing.

Complete Book Catalog

For the first time, there is now available, a comprehensive catalog of technical books of all American and British publishers. Thousands of books are listed and each is fully described in the attractive, spiral-wire bound catalog No. 4 of the Chemical Publishing Co. of N. Y., Inc., 148 Lafayette St., New York, N. Y. Because of the expense in getting up this catalog, a nominal charge of 10c is made to cover mailing expenses.

Bright Zinc Plating

The Grasselli Chemicals Department of E. I. du Pont de Nemours & Co. has just issued a trade bulletin explaining the use of "Zin-O-Lyte," which, it says, is the one process for bright zinc plating, producing brilliant deposits direct from the bath without bright dipping. The process operates with equal success in still plating or in barrel plating and is applicable to almost all types of iron and steel products except some types of castings.

Zinc deposits produced by this process possess those qualities required for the greatest rust protection. The deposits are ductile and firmly adherent. Molybdenum, in small amounts, co-deposited with zinc, produces a brilliant finish without bright dipping, a polished surface direct from the bath.

Dust Arrester Test Book

A new booklet covering "An Analysis of an Installation of Dust Suppression Equipment," by Hugh E. Keeler of the Department of Engineering Research, University of Michigan, is offered by the Claude B. Schneible Co., 3951 Lawrence Ave., Chicago, Ill.

This booklet contains authoritative data on the dust removal efficiency of wet method dust collectors, illustrations of testing equipment used, and other pertinent data, and should be of value to every plant operator having a dust problem.

Health and Safety Committee members in industrial plants are particularly invited to send for a copy of this booklet which may be secured by writing the above-mentioned company at its Chicago office at the address given.

Look to your finishing department for new savings with FILCOTONE!

FILCOTONE is an entirely new-type combination Stain and Filler. Speed, economy and effectiveness are its important characteristics!

SPEED—complete staining and filling in one operation—making the wood ready for sealing in four hours.

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Cleanliness in Painting

by E. A. Zahn
Works Laboratory, General Electric Co.

CLEANLINESS is probably the most important factor when attempting to apply finishing materials. This can be very effective in many cases, but if the shop surroundings are not suitable for paint-shop operation, then it is very difficult to obtain a satisfactory appearance on the finished work.

Only a few years ago nearly all painting departments were isolated from other operations because of the slower-drying paints which were then used. Since that time, however, a painter can more likely be found working in a welder's booth — due mostly to the faster-drying paints of today. Unfortunately these advantages of the faster-drying materials have been so over estimated and over rated that in order to do a clean paint job in some of the larger factories, it would be necessary to apply paints that would dry in about five seconds or less.

Clean Room, Clean Surfaces, Clean Paint, Clean Air

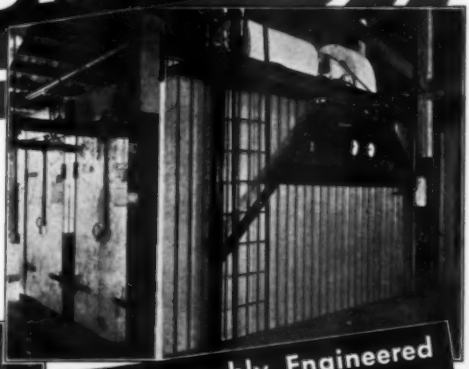
The area surrounding a paint section is of first importance and should be away from all other operations. When this has been attained, then there are many ways in which further precautions can be taken. If conveyors are used, the parts should enter the paint room enclosure through an opening only large enough to admit the work. It is then possible to filter all incoming air which, in turn, is taken out by exhaust fans. If the air is filtered and any dirt specks appear on the work, the next precaution to take is to find out whether or not the paint itself is clean. In the case of pressure tanks for spray-painting it is very simple to attach a filter to the tank end of the suction pipe, thereby eliminating all possibilities of paint dirt coming through the gun.

Excepting where lacquers are used, it is always helpful to use ordinary tack rags immeditely before spraying, eliminating any possibility of dirt specks remaining on the parts before painting. If a tack rag is used carefully enough on a surface to be lacquered, it may be helpful there also, but it has been found in many cases that an operator often uses a tack rag to rub off dirty spots or smudges which, in turn, leaves a deposit of fatty non-drying oils and eventually gives trouble on the lacquer finished parts.

Clean Booths and Conveyors

The interiors of spray booths should be greased and covered with paper at least once each week. The grease keeps all overspray from drying and holds it

Special Production EQUIPMENT



. . . thoroughly Engineered Into Your Production Layout

When it's a question of special production equipment such as Metal Parts Washers, Rust Proofing Machines, Spray Booths, Ovens, Air Filtering Units, Strainers, etc. it is just good business to turn the whole problem over to Mahon engineers. . . Why? . . because, Mahon engineers have the knowledge of present day production methods and the years of practical experience so necessary to insure operating efficiency when the installation is completed. It is also good business to rely on an organization that has been successful in every industry and has built for itself an enviable reputation over a period of twenty-five years. Your inquiries are solicited.

A [illegible] built especially [illegible] Manufacturing [illegible] Mich. The [illegible] complete and [illegible] its own heating [illegible] ces, etc.

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DETROIT—CHICAGO

Designers and Manufacturers of Industrial Washing Machines, Rust-Proofing Machines, Hdyro-Filter Spray Booths, High and Low Temperature Ovens, many other units of Special Production Equipment.

in place until it can be removed on the next cleaning. It is surprising how little time is involved in the care of a spray booth, if it has been properly cared for when new.

When the painted parts are not to be baked immediately after spraying, they should enter a well ventilated enclosure and remain under cover until dust-free. After this they may be stored in an ordinary room until hard enough to handle.

Conveyor hooks, wheels, tracks and chains are the cause of much grief regarding dirt in the final paint coat. The wheels, tracks and chain can most generally be cared for by using a suitable oil which will not drip down on the parts. These should be brushed frequently to keep them in good condition. Many manufacturers have installed rotating brushes through which the chain runs, so that in this way the chain can be kept permanently clean.

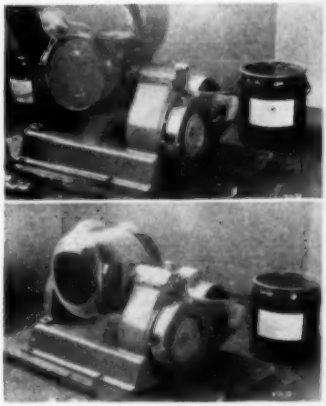
The hooks used for hanging parts on the conveyor may be cleaned in many different ways. They may be dipped in strong solvent or in an alkaline solution. Many manufacturers burn the paint from these hooks by placing them in a fire, but this method is not always satisfactory as the ash left on the hooks causes very poor adhesion of the new paint, and results in thin layers blowing off onto the work. There is a special rubber coating available which can be applied by brush to these hooks which, in turn, can be cleaned off by peeling. This method has proved very satisfactory in many cases and is also being used as a spray booth coating.

Every operator should wear a regulation uniform when he enters a spray room. In this way he will eliminate some of the dangers of lint or wool fibers which cause a great deal of trouble. A cotton or silk fiber resembles a fine hair when it becomes imbedded in a freshly painted surface, while a wool fiber looks as though there were several specks of dirt in a row, with no connection between them, due to the curl of the wool fibers.

Leafing Aluminum Finish

A product summary giving the properties of "Blue Knight Leaflex No. 5900," an extra smooth leafing aluminum finish for low cost finishing, has been prepared for distribution to the trade by Roxalin Flexible Lacquer Co., Elizabeth, N. J.

SHAKING PAINT IN CAN



Above: Placing a 5-gallon can of paint in the machine, and . . . .

Below: Rotating can in off-center position to agitate the contents so that the paint or whatever is within will be thoroughly mixed and in liquid form ready for use, regardless of how long the can of material has stood in storage. Photographs, by courtesy of Miracle Paint Rejuvenator Co., Inc.

1 Hour

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Pigment Wiping Stains

Sealer can be applied; for best results

Use our No. 1147 Sealer

All Shades of

Walnut, Maple & Mahogany are

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Shellacs, Lacquers, Paints, Enamels, Stains and Fillers

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That Copper Discoloration

Referring to H. D. G. Co's. problem, as published in May issue, page 10, under the title "Heat Discolors Copper Finish," I would like to submit my suggestions—from a plater's point of view.

In order to retain the copper finish on steel, the only improvements that could be made in the plating process are: 1) a nickel-plate foundation on the steel before copper plating, and 2) a harder copper deposit. A harder copper deposit means a finer grain structure of the metal, which is obtained by increasing the free cyanide content in the copper solution, and very small additions of hyposulphite soda.

Of course, if a protective coating could be found, perhaps of a synthetic material, the copper plate would be better preserved from high temperatures. If this material is found, it will probably reduce the reflection of heat.

If it is at all practical for your purpose I would strongly advise a chromium plated surface on the steel. This finish does not need a protective coating, can stand up against high temperatures, reflects light and heat quite well, and will last indefinitely without tarnishing or rusting, according to the quality of the plate.—M. R. (Foreman Plater).

I have a process which I know will overcome your troubles. I am sure that it will not permit the copper finish to be discolored by heat. This process I invented in Germany . . . . Should you be interested I shall be glad to hear from you.—B. F. DEVORAK, Berwyn, Ill.

Questions Answers

Mahogany Tops Pin-holed

I am having quite a bit of difficulty in finishing Mexican and Philippine mahogany top slabs and bar tops—in eliminating pin-holding or pitting, whatever it may be, which for the most part is quite general over the whole surface.

Our work is water sponged; allowed to dry from five to six hours before being belt-sanded; then it is sent to the finishing room for one coat of water stain; allowed to dry four hours; then sandpapered by hand with No. 4/0 polishing sandpaper; dusted off well, and filled with a standard brand of oil and silex wood filler which is allowed to air dry 24 hours. We then proceed to finish with three coats of what we think is the best Bakelite synthetic varnish we can get, with 24 hours for drying between coats, and sandpapering the first and second coats of varnish with No. 4/0 garnet sandpaper, allowing third coat to dry 48 hours before water rubbing and polishing.

I have tried everything I know of to eliminate this trouble, even using a four-row furniture rubbing brush to brush out all possible loose fibers that might be in the pores, and then double filling, but I obtained no better results. I might add that the pores seem to be well filled with the excep-

tion of this pin-holing or pitting, which shows up either at the end or middle of the pore. The more coats of varnish applied, the more pronounced the effect appears.

Do you think it is in the wood, or the way it might be belt sanded, or might it be in the finishing? —B. G. O. (Chicago, Ill.)

Following the described procedure of your finishing, I find that a lot of water is used in your preparations; for example, sponging and water staining. This is OK, but this wood is very porous and when sponged or water-stained it should air dry for at least 12 hours after each water application. Even then drying conditions in the finishing room should be taken in consideration. Of course, time can be saved by force drying at about 110°F. in a dry room.

The pin-holing can also be caused by using poor filler, but I think that by giving the sponge coat and water stain more time to dry, the trouble will be eliminated.

Then, going on to the varnish coats: If no shellac or sealer is used before applying the varnish, the first coat of varnish should be applied very thin, as a heavy coat will cause pin-holing in many cases.

The usual thing to do, where water stain is used, is to wash-coat between the stain and filler, but it is not necessary.

Trouble can also be caused on this type of wood through the raising of the grain when sponged. Even though it feels and looks smooth after sanding, the fibers may be just down but not off the surface. My suggestion for this is to use a little glue in the sponging water. This will stiffen the fibers and they will sand off very easily. If the fibers are not all removed they will cause pin-holing as the filler cannot penetrate into the pores. If this manufacturer will check on the items I have mentioned here, I am sure the trouble will be over. If not, I suggest you try other makes of filler.—ORRIE D. MAAL.

COLOR MATCHING TRAILER

Beginning June 1, a Drakenfeld Color Service laboratory-on-wheels started out to visit porcelain enamel plants. The B. F. Drakenfeld & Co., Inc., of New York City, plans to have the trailer visit every porcelain enamel plant east of the Mississippi River. Trained color experts will have Drakenfeld Color Oxides and all equipment needed to turn out fired color samples. The Trailer contains spray booth, furnace, large and small grinding mills, balances, testing equipment, a complete assortment of base oxides, etc., all arranged in tidy, compact style. The trailer is equipped to perform the entire process from weighing out ingredients to the final firing—doing it all in air-conditioned comfort.

Solutions Offered for Paint-Masking Problem

Referring to C. W. Co.'s paint-masking problem in the painting of "water-melon stripes" on those fiber crowns (May 1937 issue, page 38) I have had to make masking stencils for similar jobs, as I am foreman finisher for a

jewelry manufacturer. I suggest that you bend and solder together in the proper position, three strips of sheet metal each 1-in. wide—forming the assembly to fit closely over the fiber crown to be painted. This is your masking stencil through which you can spray the black coating material, using a rapid-drying material of suitable consistency at low pressure, so the material will not blow under or creep under the sheet metal stencil.

To press this stencil into place over the crown and to lift it off again with exact precision, I suggest fastening the stencil to a hinged arm which will have no side play. The crown will have to be positioned exactly the same every time, this being done with suitable guides.

For quantity runs of this kind I generally have a pair of giant tweezers made. Near the end of one tweezer blade, on the inside, I arrange to hold the part to be stenciled—in this case the crown. Near the end of the other tweezer blade, on the inside, I have the stencil mounted. When the tweezer blades are open, the part to be painted and the stencil are far apart, but when the tweezer blades are closed, the part to be painted and the stencil are in close contact, at which time the paint is applied through the open parts of the stencil.

After three or four pieces have been painted, wash or wipe the stencil clean with suitable thinner. If any runs or smudges show on the finished work, wipe these off expertly and skillfully with a clean cloth wet with thinner or solvent. For example, when using lacquer enamel, I wash the stencil with ethyl acetate and I clean the over-runs, if any, with a soft cloth dampened in benzol.—L. R. THOMAS.

It is our opinion that this problem can be easily solved by using medium-gauge brass or copper strips of the desired width, bowed to the proper shape of the crown, and spot-welded or riveted where they intersect, leaving the parts to be painted exposed. Two halves could be made in this manner and hinged to each other for the purpose of opening and closing as one would open and close a cigarette case. With this type of mask, two crowns are inserted, the mask closed over them, and the operator is ready for work.

CLEAN SPRAYING AIR

Modern air cleaners or separators are mounted in the compressed air pipe line above and back of the spray operators shown at work in this picture, to insure clean spraying air—free from dirt, oil or water. Clean air is essential for good finishing. Photograph, courtesy of Motor Improvements, Inc., Newark, New Jersey.

• MEMO •

Send for 1 Quart Claim Tester Sample

of *Absolute* STAIN SOLVENT

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Make tests of the following claims:

1. Cuts water stain powders.
2. Does not raise grain.
3. Don't have to change formula.
4. Produces a deep and uniform shade.
5. Can recoat in twenty minutes.
6. Eliminates sanding.
7. Economical to use.
8. Saves time.

Note: *Absolute Stain Solvent* is now being used in production by leading manufacturers.

WRITE —

WOODFINISHING PRODUCTS CO.

34 Industrial Street
Bronx, New York City

Winston-Salem
North Carolina

To use this type of mask for application of material by spray would be impractical because the compressed air employed would cause the edges to feather and produce an uneven blurred line between the painted and unpainted areas. However, it is the writer's belief that by eliminating the pressure-feed method of material application and distributing the material over the area to be painted by means of centrifugal force rather than compressed air, this undesirable feature will be entirely eliminated and a perfect clean-cut job will result.

A machine known as the "Norris Painting Machine" . . . . will distribute almost any type of material through the use of centrifugal force, which creates no mist or paint fog. It is said these machines are ideal for stencil work or any paint application where fog or mist is undesirable. It is also claimed that an operator can paint practically to a sharp line without the feathering effect of spray application. Due to these features, the mask mentioned would not have to fit the crowns accurately, but would act more as a shield to protect against faulty gun operation rather than to absolutely blank out, as by the gummed tape or silk screen method.

In order to gain large daily production, as many masks could be made as would be required, and removed only after the material became dry or "set." This would eliminate all danger of smearing the painted areas, and one gun operator should be able to paint at least 250 to 300 crowns per hour. Automatic conveyor equipment, of course, would easily triple this production figure.—INDUSTRIAL SPRAYING CO.

Unlimited Color Effects on Wrinkle Finishes

An announcement from Sherwin-Williams Co., Cleveland, Ohio, states that:

"Sherwin-Williams engineers have recently devised a way to apply almost any conceivable color on surfaces or products having a wrinkle-texture finish. This simple new method enables the use of combination lacquer-synthetic enamels or high-gloss enamel colors over a wrinkle finish, thus making possible such advantages as:

"1) Widest possible color range without need of special batches of art metal finishes.

"2) Permits finishers to take care of their requirements with smaller stocks of art metal finishes.

"3) Makes possible changing the color of a finished article by merely re-spraying with Opex; also simplifies finishing in 2-tone effects.

"4) Brighter, cleaner colors are obtained by this method because the lacquers are not baked and therefore the possibility of discoloration due to irregularity in oven temperatures is eliminated. Thus, the percentage of pieces which need refinishing, in production, is greatly reduced.

"5) The new system is ideal where pieces are to be finished in other colors in addition to the original color of the art metal finish, because there is practically no difference between the gloss of the lacquered and unlacquered finish.

"The system involves the application of art metal platinum gray or black in the regular way and baking for at least one hour at 250°F. Then recoat with lacquer or high-gloss enamel in the color desired, applying only sufficient material to get solid covering.

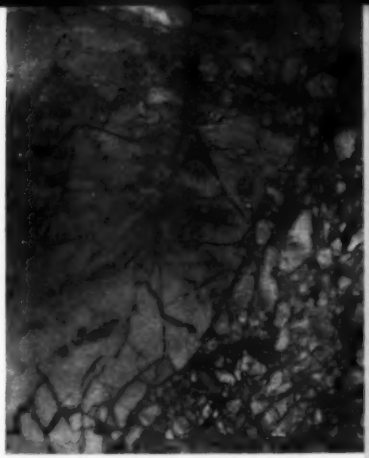
"Caution: Care must be taken to avoid applying a too-heavy coat of lacquer enamel, as this might tend to fill up the desired irregularities of the original art metal coat."

For Testing Acid Content

The Lea Mfg. Co., Waterbury, Conn., has placed upon the market a new method for the determination of pH by the use of pH papers, which permit visual quantitative determination of the acid or alkaline content of solutions. They are as fast as the well-known Litmus papers and give accurate quantitative results at a glance.

These papers are very handy not only in the laboratory but in the plant where control of acidity or alkalinity in production must be maintained.

Marble reproductions



Distinctive and exclusive designs are obtained by the newly improved OXVAR Process, giving beautiful and appealing *marble* effects when applied on:

- heating stoves
- leather coverings
- table tops
- bank and office partitions
- lobbies, public buildings and hotels
- filing cabinets
- metal furniture
- etc., etc., etc.

Investigate the OXVAR Process of reproduction . . . you can use it with the utmost economy in finishing. Write us!

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Our Art, Color and Design Department is ready at all times to assist you or your color design engineers in adapting this process to your production. We maintain an engineering staff, and complete service for installing the process.

OXFORD VARNISH CORPORATION, DETROIT, MICH.

Faithful Reproductions also WOOD GRAIN

Reproduction by the OXVAR Process portrays all the depth, tone, beauty and changeability of original wood grains.

Processes patented in the United States and foreign countries

White Synthetic Enamels

The laboratories of The Gilbert Spruance Co., Philadelphia, Pa., have developed a new line of white synthetic enamels, formulated to meet specific requirements such as low bake, high bake, etc. They may be sprayed, dipped or brushed, depending on the formula. They produce an intense full-bodied white film in one coat. The enamel coatings have exceptional flexibility, adhesion, durability and toughness—and they are non-poisonous. There is no after baking discoloration.

This line of enamels was formulated for use on metal but may be also used on wood. They have proved their practical use in application under normal conditions existing in the average plant.

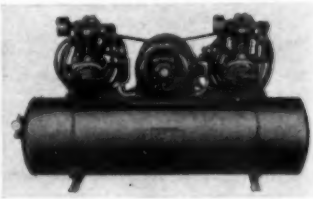
Compressor Outfits

The DeVilbiss Co., Toledo, Ohio, announces four new air compressing outfits available in 7½ or 10-h.p., with single or 2-stage compressors available with either horsepower. The new compressing outfits are designed especially for large automotive service stations and auto-refinishing establishments, whose compressed air requirements are unusually heavy, and for small industrial plants whose compressed air needs are beyond the capacity of the ordinary air-cooled compressor, but not equal to the capacity of the industrial type water-cooled air compressing outfit.

Two compressors, each developing a maximum pressure of 200-lbs. with the 2-stage compressors, or 150-lbs. with the single stage, are firmly mounted on opposite ends of the 20x60-in. air tank. The motor driving both compressors is set between them on the air tank.

Each compressor has a "V" belt drive, combination air strainer and muffler, check valve, inter and after cooler, and centrifugal pressure release mechanism set to cut in at 160-lbs. and out at 200-lbs. on the 2-stage, and in at 80-lbs. and out at 100-lbs. on single-stage compressor. Displacement of outfits varies from 31½ to 57-cu.ft. of free air per minute, depending upon pressure and horsepower.

What's New . . .



Compact, powerful and accessible.

Air tank capacity of both 7½ and 10-hp. outfits is 10.88-cu.ft., although a 20x72-in. tank with an air capacity of 13.06-cu.ft. is available at a slight additional charge.

Standard equipment on all outfits includes pressure gauge, outlet, drain and safety valves, and automatic starting device.

Chemical Flame-Proofs Fabrics

A new flame-proofing agent for textiles and paper has been developed by the du Pont Company. Textiles and paper treated with this new chemical are highly flame-proof, and at the same time have a soft, pleasing "feel." In addition, this new chemical does not have any appre-

A High Return

In tennis, a high return gives one an opportunity to smash over a stroke that usually puts an opponent at a decided disadvantage. So it is also in business . . . The manufacturer with the high return is continually putting his competitors on the defensive.

Egyptian Finishes — Lacquers, Synthetics, Paints and Varnishes — have been keeping the products of industry in the game for over sixty years . . . They have been producing high returns for their users.

The next time you are in the market for finishes of any type we will welcome an opportunity of discussing your requirements with you. Our technically trained force of representatives and our extensive laboratories are at your command and we invite you to avail yourself of the opportunities these facilities offer.

THE EGYPTIAN LACQUER MFG. CO.
LACQUERS · SYNTHETICS · PAINTS · VARNISHES
ROCKEFELLER CENTER NEW YORK, N.Y.

ciable influence on the strength of textiles and paper, or on the dyestuffs commonly used. In announcing this new chemical, it is pointed out that textiles and paper treated with fire retardants are not fireproof in the sense that they cannot be burned, but are flame-proof in that they do not blaze or smolder, and accordingly will not spread a fire.

During recent years much research has been directed to the development of a satisfactory flame-proofing agent for textiles and paper, but up to the present all materials used for this purpose have had certain disadvantages which limited their usefulness.

The du Pont Company expects to begin the manufacture of this new material on a commercial scale in the near future.

Provides Control in Air Conditioning Systems

Extensive studies have indicated that bacteria control in air-conditioning systems is a protective measure that adds another valuable feature to the proven health and commercial advantages of air-conditioning.

In many types of air-conditioning systems, economy requires the re-use of the water employed for washing or scrubbing the filtered air before it is returned to the rooms that are being conditioned. It is a known fact that a considerable amount of organic matter from re-circulated air is introduced into the re-circulated wash-water, providing sufficient food material to allow bacteria to grow and increase rapidly. Due to this, algae and slime growths accumulate on surfaces directly in contact with water, and thus interfere with the efficient operation of the system. In addition, surfaces of coils used for heating and cooling air also accumulate deposits and re-infect the washed air, so that air washed with water of high bacterial content or that contacts bacterial growths on surfaces, becomes a carrier of infectious organisms detrimental to health.

Oakite Products, Inc., 32F Thames St., New York, N. Y., through its Research Division, has developed a new material known as "Oakite Airefiner" that, it is claimed, successfully solves this problem. When added to the re-circulating water used to wash or scrub air, "Oakite Airefiner" keeps the wash-water sterile and prevents the growth of slime and algae deposits in the system. This new material is said to be completely soluble, transmits no odor to water or air, and provides a stable, colorless solution that is safe and non-toxic. It is non-corrosive to metal surfaces, helps prevent water scale formation. Successful use indicates that it is extremely economical, only very small amounts being required to destroy bacteria and to keep water sterile. An interesting booklet giving further details in connection with this new development is available on request to those interested.

New Compressors

An improved line of tank-mounted compressor units for general industrial service has been developed by Worthington Pump and Machinery Corp., Harrison, N. J.

Single-stage units are available with vertical compressors. The motor sizes range from ¼ to 5-h.p., with displacements from 1.43 to 67-cu.ft. per minute at a maximum pressure of 250-lbs. per square inch.

Two-stage units are available with angle-type compressors. The motor sizes range from ¾ to 10-h.p., with displacements from 3.9 to 45-cu.ft. per minute at a maximum pressure of 250-lbs. per square inch.

A pressure switch, with a valve for unloading the compressor when starting or stopping, is furnished on all models. All units are equipped

MODERN EQUIPMENT
Steps up
EFFICIENCY

...*but* THERE'S NOTHING EFFICIENT ABOUT **RUST**

The mechanical achievements of your skilled engineers and mechanics may be designed to "step up" efficiency, but if rust retards operation or ruins fine appearance, efficiency is lost. So, too, are owner satisfaction and recommendation.

Lasting efficiency can only be assured if your production methods include adequate protection from rust by the Parker Processes. No matter what you make ... iron, steel or zinc-surfaced products ... there is a Parker Process adapted to your needs. Whether the units are large or small, Parker Processes can be easily and economically fitted into your production routine.

Parker Processes are the best known and most widely used chemical rust-proofing processes in the world, used as standard finishing aids by the largest manufacturers of automobiles, refrigerators, office and electric devices, as well as in many other industries. Give your products the sales advantages of this popular quality feature. Write for descriptive literature.

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DETROIT, MICHIGAN

PARKER
Processes CONQUER RUST
BONDERIZING · PARKERIZING

with Worthington Feather Valves. The crankshaft is carefully balanced to insure smooth operation. Full-floating wrist pins provide durability and quietness; the honed cylinder walls reduce friction and increase the life of the piston rings. Most models are available with either vertical or horizontal tanks (air receivers).

Automatic Spray Machine

The Binks Mfg. Co., 3114 Carroll Ave., Chicago, Ill., has brought out an automatic spray machine for finishing pen holders, fountain pens, automatic pencils, and other small articles.

Articles to be sprayed are set on turning spindles mounted on a steel conveyor, and are carried through a small opening into a spray booth where automatic spray guns are mounted at convenient angles to cover the entire surface to be coated. By means of adjustable brackets the position of the guns can be changed to suit the finishing problem of each kind of item.

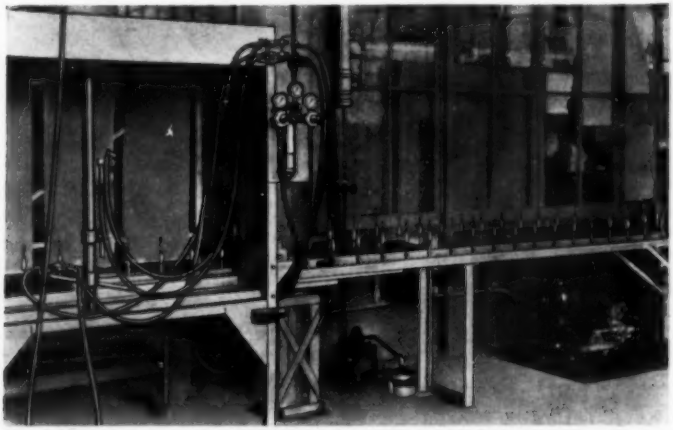
A reduction-gear motor operates the conveyor belt at the required slow speed. All accessories to a regular spray booth, such as exhaust unit, oil-and-water extractor, air regulator and gauges, and the necessary hose and connections are all specially adapted to the needs of automatic spraying.

After the spraying operation has been completed, the same conveyor belt returns the articles to a bake oven where the finish is baked. Arriving at the unloading point, the articles are dry and ready for stamping.

Healthguard Respirator

Recently developed, and approved by the United States Bureau of Mines, is a respirator for use particularly in Type "A" dusts (those tending to produce silicosis). This bears the name of Cesco No. 90 Healthguard Respirator and is an entirely new development. It is manufactured by the Chicago Eye Shield Co., 2300 Warren Blvd., Chicago, Ill.

The filtering element removes all



The items move by conveyor past automatic spray guns and then into a baking oven.

See How the New Finishes Look on Your Own Work

Some of the most attractive finishes shown at the Furniture Markets are originations or developments of our Finishing Studios.

Many of the finishes we have brought out have become standard and for authentic effects, furniture manufacturers are becoming accustomed to refer to us first.

Among the popular finishes in which our designers have pioneered and excelled are:

Bleached and Blond (all woods)
French Walnut
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Practical finishes on Elm
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Pickled Finish

You can now see how the new finishes will look on your own work. Send us unfinished panels or carvings from your regular stock and mention the finishes in which you are interested. We will finish the pieces and return to you with full information. No obligation, of course.

Send the panels today.

JAMES B. DAY & CO.

Makers of Fine Finishes for Wood and Metal

CHICAGO

dust, even of microscopic fineness, yet allows free passage of air. There is only one filtering surface, of large area; and a supersensitive outlet valve permits no inside air pressure. Hence users report no apparent resistance to easy breathing.

Of equal importance with the filter, as a precaution against breathing dust, is the seal at the facial contour. This seal is effected with the aid of a soft metal band which serves the additional purpose of so reducing the headband pressure that it is no longer noticeable.

Everseal Finishes

A letter and catalog from Everseal Mfg. Co., Inc., 57th and Broadway, New York, N. Y., announces a "new line of modern industrial and maintenance finishes" under the trade name F. W. B. The materials include:

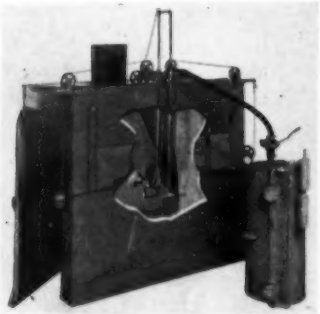
Heat-resisting aluminum finishes—Recommended for painting heated surfaces which reach temperatures from 400° to 600°F. These coatings provide a permanent, brilliant and attractive finish that will withstand the rigors of intense heat. In addition they possess all of the essential characteristics of high grade aluminum finishes.

Metal trim enamels—Quick-drying enamels producing a high gloss finish that is durable and waterproof; formulated especially for metal trim such as doors, metal sash, balustrades, grilles, etc.; offer great durability and resistance to chemicals such as those contained in soaps and washing compounds. The colors are sun-fast and may be recommended for exterior metal surfaces such as gasoline station pumps, automotive vehicles, etc.

Machinery enamels—Created particularly for machinery and industrial equipment; possess high resistance to moisture, heat, fumes, lubricating oils, and abrasion. When applied to a bare metal surface, the surface should first be coated with Everseal rust inhibitive primer.

Alcohol-resisting varnish—A finish that offers an unusually high grade resistance to alcohol, water, chemicals, greases, hot dishes, etc. It has found favor in the finishing of bars, counters, tables and fine furniture. This finish is quick-drying, tough and durable. In addition, it is "print-proof" thereby eliminating printing and scarring of goods in transit.

BLAST-CLEANING UNIT

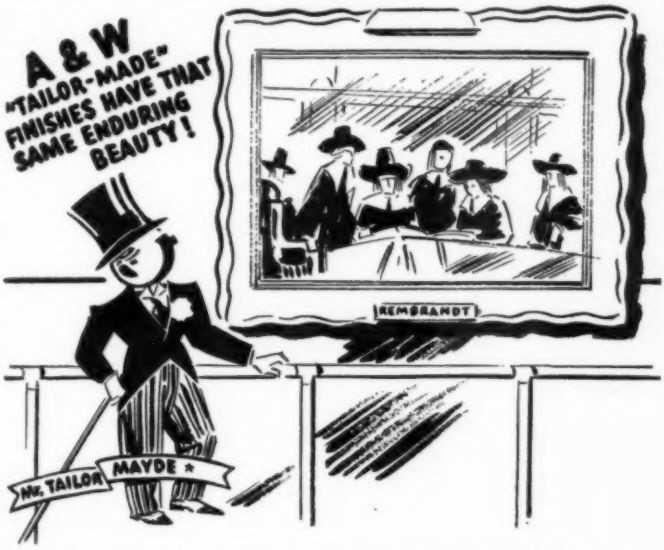


A complete blast-cleaning unit ready to operate . . . for cleaning metal castings and sheets preparatory to finishing. The front of the cabinet is cut out in order to show the way the nozzle is controlled on the inside. Photograph, courtesy of Peoria Sand Blast Manufacturing Company, 305 E. State Street, Peoria, Illinois.

Gas-Tight Goggles

H. S. Cover, South Bend, Ind., announces goggles that are gas-tight and fit the face so snugly that outside air cannot penetrate to the eyes. These goggles also eliminate fogging without the necessity of removal.

A small portion of water is placed inside the goggles when they are put on. Capillary action and patented rubber groove keeps water away from and out of the eyes. An easy nod and shake motion at first evi-



Examine any of the old masters today . . . a Rembrandt, a Rubens, a Goya . . . and you'll see the same identical perfection of coloring, line and detail that the contemporaries of these artists marvelled at centuries back. For these men endowed their masterpieces with enduring beauty through cautious, careful choosing and mixing of the pigments with which they worked. They dared not compromise with quality.

Similarly, in the manufacture of finished metal products there can be no compromise with the quality of the finish you use. Some fabricators choose to ignore the importance of a good finish and allow their merchandise to suffer in comparison with competing products. Others demand the tough, enduring beauty of an A & W Finish that has been "Tailor-Made" to fit their particular requirements. Take advantage of the experienced laboratory service and facilities that the A & W representative has to offer you. See him and place the burden of metal finishing production troubles on his shoulders. You'll find it a wise and profitable procedure.

AULT & WIBORG CORPORATION

NEW YORK, N.Y. CINCINNATI, OHIO

Builders of Fine Industrial Finishes

Kindly mention INDUSTRIAL FINISHING when writing advertisers

dence of fogging immediately removes all clouding and makes it possible for wearer to work almost indefinitely without having to remove goggles for any reason.

Wherever workers find it necessary to work in chemical fumes, gases, steam, etc., they will find that these gas-tight, non-fogging goggles will prove highly beneficial.

First-Aid Kit

A new type of Brac-Kit, a first-aid kit designed especially for industrial use, has been developed by the Davis Emergency Equipment Co., New York, N. Y.

A special feature of the Brac-Kit is that the kit containing the first-aid supplies is firmly locked, with a dustproof and waterproof seal, in an outer case, which can be permanently mounted in any convenient location. This permits Brac-Kits to be located at various points in plants, offices and warehouses, on service trucks and buses, and other places where first-aid may be needed. If an accident happens, no time is lost hunting for first-aid supplies. With a twist of the wrist, the kit is unlocked and withdrawn and its contents are available for instant use. If, after use, the kit is mislaid, its absence will be promptly noted.

The kit holds ten unit-cartons containing dressings and treatments which can be selected to meet any needs. Provision is made for a wire seal to prevent unauthorized removal of supplies.

SENSIBLE FRENCH PROVINCIAL BEDROOM FURNISHINGS

Organdy glass curtains with knife pleating and damask overdraperies used on the wrong side to achieve a nubby, peasanty effect, are a striking note in this French Provincial bedroom setting. Made of birch in a new beechwood finish, the furniture provides an informal atmosphere, still incorporating the feminine curves of the Louis XV design. In keeping with the present vogue in wallpapers, the large subdued floral spray is in shell pink and gray. Product of California Furniture Shops, Los Angeles, Calif. Photograph, courtesy of Los Angeles Furniture Mart.

GETTING ATTENTION

Just as shapeliness and grace attract the eye to the human figure, so does a distinctive finish on your product compel attention. In fact, a fine finish does even more than merely attract . . . it carries on in many cases to consummate a sale.

Perhaps the nature of your product calls for boldness, color, dash . . . or perhaps modest richness with dignity and character.

Our studio can be of service in creating a finish best suited to your product . . . write us for details. There is no charge for our studio service.

Rockford Varnish Co.

ROCKFORD, ILLINOIS

Rub-less Lacquer

V. J. Dolan & Co., 1830 N. Laramie Ave., Chicago, Ill., announces a new rub-less lacquer (licensed) which is transparent, tough, heavy-bodied, resistant to alcohol and unusually check-proof. According to Mr. Dolan's literature about the new material:

"By eliminating the least expensive solvent used in making all regular lacquers, and replacing it with a superior and more costly one—we have produced the new rub-less lacquer. Because it positively does flow out more smoothly, and dry without microscopic 'hills and valleys,' it can be rubbed with less than half the regular effort, and at the same time leave approximately 50% more lacquer on the surface after being rubbed."

SENDING COLOR BY WIRE

Here, two yellows are being sent by wire to Chicago from New York via Western Union's new facsimile process. It telegraphs line impressions. The spectrophotometer, automatic color analyzer, in service at International Printing Ink's laboratories, charts the characteristics of any color on graph paper. These "colorgrams" make it possible to transmit rush color matches and specifications by way of the new facsimile telegraph system.

"Du-al" Hose for Air and Fluid

A new development in spray-painting hose is announced by Eclipse Air Brush Co., Inc., Newark, N. J., with the introduction of the "du-al" hose which combines air and fluid hose into one unit, the tubes being united by a web of solid rubber moulded in one piece with the outer casing of the hose. The combination is as flexible as a single line in use, and handles as easily, eliminating the annoyance and waste of time occasioned by ordinary hose becoming tangled and snagged.

The new hose is of special reinforced construction, combining the best features of both wrapped and braided hose through an arrangement of braids with an intermediate wrapping of high tensile cords. The inner tube is compounded to resist the chemical action of paints, lacquers and so on, and the outer sheath to resist chemical as well as abrasive wear. There is no possibility of writhing or torque with "du-al" hose, even when different pressures are used on opposite sides.

For making standard connections, enough of the web is removed to spread the hose to the required outlets, further splitting being prevented by a tightly fitting collar. The "du-al" hose is available with 3/8-in. fluid passage and 5/16-in. air passage.

Chip-Proof Lacquer Enamel

The Roxalin Flexible Lacquer Co., Inc., Elizabeth, N. J., announces a chip-proof, flexible, air-drying lacquer enamel in black and in a variety of colors. This material can be applied in one thin opaque coat directly to bare metal, and it has high resistance to all kinds of abuse. For example, cold-rolled steel strips can be coated in one continuous operation and then subjected to such man-

Rowco

WRINKLETONE

THE CONTROLLED WRINKLE—

fine - medium heavy

In gloss or semigloss effects—supplied in all colors and tones—bakes 1 hour to 1½ hours at 200° to 250°.

A positive, controlled wrinkle with constant and uniform results.

WRINKLETONE is foolproof — does not disfigure nor mar surface —not effected by oven fouling. Has remarkable adherence.

Sample panels and prices of WRINKLETONE sent on request.

Rowe Paint Company

Long Island City, N. Y.

THE GREATEST NAMES IN THE MASKING TAPE INDUSTRY

PERMACEL
THE PAPER MASKING TAPE

JONFLEX
FINELY-WOVEN CLOTH MASKING TAPE

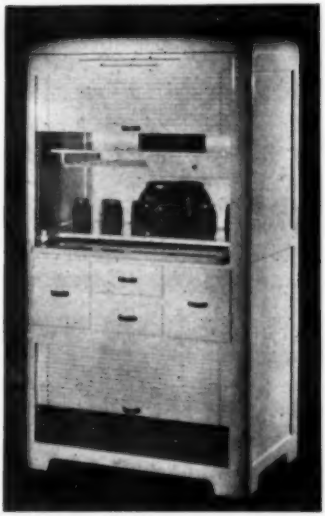
INDUSTRIAL
COARSER-WOVEN CLOTH MASKING TAPE

SAMPLES ON REQUEST
Sizes ¼" to 36" wide in 60-yard rolls

THE REVOLITE CORP.
REG. U.S. PAT. OFF.
NEW BRUNSWICK, NEW JERSEY

ufacturing operations as cutting, blanking, forming, bending, punching, etc., without any harm to the finish such as flaking, chipping, scratching, loss of adhesion, or harm from the oils used to lubricate the dies or punches of machines. The coating is very thin and uniform, and is said to have permanent flexibility and adhesion. It is available in flat sheen, semi-gloss and full-gloss.

STREAMLINED CABINET



Beauty and utility are combined in this modern kitchen cabinet which boasts 40% more room than the conventional type cabinet. Streamlining was in evidence in the styling of kitchen furniture at the summer national home furnishings market — at the American Furniture Mart during July of 1937. Porcelain Work-shelf slides into the cabinet and the roll-top doors close to make a compact unit of glistening white enamel. Delphinium blue drawer handles and trimming add a striking touch. Photograph courtesy of the American Furniture Mart, Chicago, Ill.

"Spotting Out"

Causes and Remedies

SPOTTING OUT a defect that often appears on plated or oxidized metal products, was discussed by Gustave Klinkenstein of Maas & Waldstein Co., makers of industrial finishes, at the annual convention of the American Electro-Platers' Society held in New York in June.

Mr. Klinkenstein pointed out that there are two kinds of "spotting out." The first of these, called "crystal spotting," occurs only on "oxidized" products; that is to say, products of brass, copper, silver, nickel and other metals (either solid or plated) with the surface darkened by treatment with sulphide solutions. The other kind of spotting is called "stain spotting," and this trouble occurs chiefly on plated products.

Crystal Spotting

Crystal spots form on oxidized products after they have been lacquered. They are usually small, dark in color, and obviously crystalline when viewed under a lens. They are due, said Mr. Klinkenstein, to the action of sulphur on the metallic sulphide coating of the product. This sulphur may come from furnace gases in the atmosphere, from the wrappings of the products, and other sources. Crystal spotting is minimized by using sulphur-free wrappings and by protecting the products from atmospheric sulphur by using lacquers specially developed for this purpose.

Stain Spotting

Stain spotting is caused by traces of salts from the plating bath (chiefly the cyanides), which

SURFACERS

PORES NEED FILLING for smooth - textured attractive finishes. Presdwood, celotex, natural woods, rough metals and porous compositions need quick-drying, easy-sanding, high-bodied surfacers—in short, our CEL-U-LAK Surfacers.

These have unusually high body, coupled with low viscosity, permitting a heavy application by spray; air dry to sand in 1½ hours, force dry at 125° for 20 minutes. They are ground finely and have phenomenal adhesion and resistance to moisture.

CEL - U - LAK Surfacers are standard in white, ivory, dark grey and red. They have for 6 years been an outstanding successful item in our line. We suggest you examine it for your requirements.

The
VARNISH PRODUCTS CO.
CLEVELAND, OHIO

● ● ● ●

LEADERSHIP IS NOT AN ACCIDENT

Our leadership in the manufacture of **COTTON, WOOL AND RAYON FLOCKS** is the result of continual study of the users' requirements—diligent adherence to the use of only the best raw materials and scrupulous attention to every detail of manufacturing, resulting in finished flocks of superior quality, recognized and acknowledged by all users.

● ● ● ●

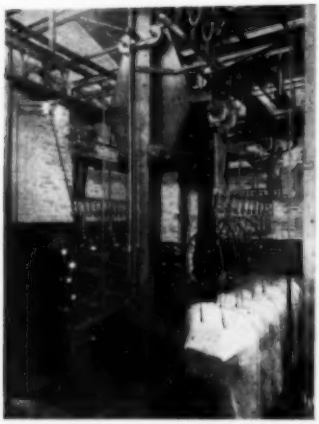
Claremont Waste Mfg. Co.
CLAREMONT, N. H.
The country's leading makers

remain in the pores of the metal coating, according to Mr. Klinkenstein. These residual salts can not be completely removed by rinsing, and, unless their action is neutralized in some way, they will absorb moisture, overflow the pores, and form blotches on the surface of the product.

To reduce stain spotting, Mr. Klinkenstein recommended the following precautions: a) use compact base metal; b) keep free cyanide in bath low; c) thorough rinsing; d) allow products to stand over night in humid atmosphere after plating and remove stains next day; e) bake products at 250°F., which inactivates the salts; f) use "non-stain-spot" lacquers.

Mr. Klinkenstein outlined two complete plating and finishing schedules which, he stated, effectively eliminated stain spotting. In one of these, water-dip lacquer was applied after baking; in the other, a special clear lacquer was applied without baking. Water-dip lacquer, he pointed out, may be used either as a final finish or as the foundation for a better finish. In the latter event, the products are protected from spotting by the water-dip lacquer until the final finish is applied.

TWIN DIPPING MACHINE IN ACTION



This view shows new wheelbarrow parts (wheels and bodies) being dip-finished in two colors in a twin dipping machine. The parts hang from trolleys operating under a steel I-beam. With the monorail equipment used in connection with this dipping machine, the products can travel from final assembly through painting, drying, baking or other operations to packing without any rehandling. Photo., courtesy of Louden Machinery Co.

Guide Lines and Pattern Masks

A number of decorating problems can be solved by the use of masking tape, flexible stencils, weighted strings or narrow ribbons, etc., in connection with spray painting. Most of us are more or less well acquainted with the uses of masking tape and the several ways in which this material can be used for masking sharp dividing lines between different colors or between a color and an area of glass, plated metal or some other type of surface. It is interesting to note that edges or areas to be masked by means of this tape need not be straight, but may follow various geometric curves within certain reasonable limits. This is made possible by the slight crinkling of the surface of the tape.

An emergency method by which very narrow lines or stripes can be masked off is to use suitable lengths of wrapping twine or

SMOOTH AS SILK

Sunbrite SILVER GOLD COPPER Bronze

IT GOES FURTHER

Eye-appeal makes selling easier. A bright, smooth finish on your product is the beginning — and often the successful completion — of your sales story.

You can combine this perfection in finish with *economy in material and labor costs.*

Write Today for Color Card and Samples

The Mitchell-Mayer Co., Inc., St. Louis

Other Sunbrite Products: **Aluminum Paste . . . Aluminum Powders . . . . . Aluminum Paints . . . Bronze Powders . . . Bronze Varnishes . . . and a complete line of Industrial Bronze Powders.**

wrapping tape, tying a weight to each end and stretching the twine across the level surface to be decorated, letting the weights hang over the edge. For instance, one or more lengths of twine may be stretched across a table top to form delicate border lines, singly or in multiple. Where this method of masking is used, the spraying, of course, should be directed straight down to produce satisfactory results.

It is even possible to use lace as a stencil for producing some very beautiful effects. One method of stretching it evenly over a level surface, is to place strips of wood over the opposite edges of the lace and allow these weighted edges to hang over the edges of the surface to be sprayed. The same lace can be used over and over again by washing it from time to time in a solvent and allowing it to dry thoroughly.—J. E. HYLER.

New Synthetic Finishes

IN A TALK on the subject of "Recent Discoveries in Synthetic Products and their Relation to Decorating," given before the American Institute of Decorators' annual conference in New York City, on June 17, Dr. James K. Hunt of E. I. du Pont de Nemours & Co. spoke about a number of interesting developments in synthetic finishes. Among them he mentioned a new enamel made on a synthetic-resin base, this new material being developed for interior woodwork and giving a surface that is actually whiter than white tiling. According to Dr. Hunt, this new finish retains its whiteness, dries quickly and has an extreme tough elastic film which can be washed like a china dish when it becomes soiled. It has successfully withstood more than 200,000 "scrubs" in a specially designed testing machine.

Dr. Hunt also spoke of the fast vat dyes which have brought more durable colors to textiles and paper. "When cotton, rayon and linen upholstery fabrics are vat dyed," he said, "you can be sure they will withstand the color-destroying effects of sunlight, washing, dry-cleaning, perspiration, for vat dyes are the fastest colors chemistry has developed."

Pyroxylin-coated fabrics, which are widely employed by decorators for upholstery materials, screens, desk pads, waste-paper baskets, and other accessories, are another class of synthetic materials to which he called attention. In one hotel, window side drapes of embroidered pyroxylin-coated fabrics have been used with artistic effect. In another, the 600 chairs of the main ball room are upholstered with a "gold" pyroxylin-coated fabric of rugged texture.

Reference was also made to the new waterproof, washable window shades of pyroxylin-impregnated fabric which have found wide application in homes, hotels and office buildings, and are now appearing in the new larkspur blue and in accordion pleated effects.

Another development referred to in the talk was water-repellent treatments which modern chemistry has made possible. Fabrics of many different types, such as duck, satine, chintz, Dr. Hunt pointed out, can now be made water-repellent without changing the appearance of the material. The treatment is of particular

WALKER'S *New Metallic Pyroxylin Finishes Are Sales Builders*

The finish is a big factor in selling metal products—such as electrical goods, lamps, novelties, toys, etc. Walker's Metallic Pyroxylin Finishes adhere exceptionally well; one coat gives a good coverage, and light polishing and buffing brings out a high and beautiful lustre.

Walker's Metallic Pyroxylin Finishes have a wide and varied use. They are furnished in Gun Metal, Gold, Silver, Copper, Bronze and Pastel shades. Send for SAMPLES of this new finish and color chart.

H.V. WALKER CO.

MAKERS OF FINE FINISHES

OFFICES AND PLANT - - - - - - - - ELIZABETH, NEW JERSEY

Economical and Efficient

The "SPEEDIP" Whirl Enameler

For lacquering and enameling small wood, metal, fibre and composition parts. This machine effects substantial savings in time and materials, with noted improvement in quality and appearance of finished surfaces. All operations are within the machine, making for the latest and most economical finishing method. Let us demonstrate quantity and quality coating of small parts at low cost. Write us!

Mail some items of your make today. We will finish them and return for your minute inspection. You can't lose on such a demonstration.

Ronci Machine Co.

45 RIVER AVE.

PROVIDENCE, R. I.

HERE THEY ARE

A family of specialized primers . . . approved in the laboratory . . . proved in service . . . for *magnesium, aluminum* and other metals you can get results with our primers that we defy competition to equal . . . and this at the right price . . . Give our Prime-Cote family a trial by giving us your particular problem.

Prime-cote

THE WATSON-STANDARD CO.

Manufacturers of Specialized Industrial Finishes and Lithograph Coatings for Spray, Dip or Roller Application to Metal.

Factory and General Offices PITTSBURGH, PA.

Warehouses: Boston, Buffalo, Detroit

value for upholstery on out-door furniture, and for awnings and garden umbrellas.

One of the newest developments of the chemical laboratory, he said, is a mildew-proofing treatment which prevents the growth of destructive fungi on fabrics that are exposed to dampness, and is especially useful for out-door materials.

So. California Representative For Murphy Varnish Co.

Mr. Theo. O. Howell is now representing the interests of the Murphy Varnish Co. and its associate company, the Essex Varnish Co., both of Newark, N. J., in Southern California and vicinity, with headquarters at 149 W. 14th Place, Los Angeles, Calif.

Mr. Howell has been with the Murphy organization for nearly 20 years, and for the greater part of that time has specialized on national accounts, covering a wide diversification of technical requirements.

The importance of the Los Angeles area, as a developing cross-section of the nation's industries, led Mr. Howell to seek a transfer from the east, feeling that his talents and experience could be more intensely and profitably applied in such a concentrated area of industrial opportunity.

Sanding Emulsion

In conjunction with the new sandpapers recently developed, The Varnish Products Co., 5208 Harvard Ave., Cleveland, Ohio, announces a new product, "Sanding Emulsion F. 4942," for sanding, polishing and rubbing finished surfaces.

For years, it has been general practice to use naphtha, oil or water with abrasives in sanding, polishing and rubbing finished surfaces. Everyone is familiar with the individual merits of each.

The sanding emulsion, F. 4942, combines the ease of abrasive cutting of oil and naphtha with the detergent and cooling action of water.

It has been used successfully in conjunction with standard rubbing and polishing compounds to which previously water had been added for ease of operation. It is harmless to all finishes.

To Use Color Effectively

ON OUR MANUFACTURED PRODUCTS

by Howard Ketcham*
Color Engineer

A SCORE OF YEARS AGO color was little used in manufacture. Tableware was unornamented for the most part; rooms, when painted, were in plain colors, and black prevailed in most items of merchandise. The absence of color in manufactured products tended to delay the appreciation of it. With the advent of the World War a color cycle commenced. Surplus profits financed experimentation with colors. The demand for color developed so rapidly that few manufacturers found time to give its application to their merchandise the consideration it merited. At that period color was considered in the nature of a temporary fad. All made haste to climb on to the band wagon before this natural vehicle for sales expired.

During this entire period the scientific aspect of color was ignored. As soon as industrial leaders realized that color had come to stay—that it represented a logical phase in the artistic development of the people, the consideration of pleasing combinations of color entered into practically every phase of industrial enterprise. Through such expressive mediums as color advertising, color moving pictures, color in merchandise, color has definitely come of age.

At last color is valued for something more than mere surface prestige. Its utilitarian value is recognized in its use to arouse desired degrees of emotional perspective. Its effectiveness in imparting power over form is seldom lost sight of in meeting the obsolescence factor in new lines of merchandise.

Many manufacturers have failed in their sales promotional efforts with color because of a too persistent attempt to push commodities in colors that fall short of the standards of taste of their consumers.

Sources of Color Suggestions

Fashion and color style events of today are in reality connected by links with style events of the past. There is no such thing as a new color. That which appears new, is, in reality, evolved slowly from the traditions of the past. These transitions in human color preference transpire gradually. The designer's Spring and Fall

*President of Howard Ketcham, Inc.

Note: This is part of a talk made by Mr. Ketcham during the National Rayon Technical Conference, held at the U. S. Bureau of Standards, Washington, D. C., May 14, 1937.

style seasons are merely arbitrary periods of color choice. Public fancy for color changes more often than twice a year. The colors that sell today are determined by watching and registering the streams of indications that flow from all sources—from advertisements, dress fashions, movies, fabrics and art.

These sources of color suggestions have their influence on the sales of all types of merchandise. Colors that sell today may lose much of their popularity—sales appeal—in tomorrow's market due to the subtle influences of some change in color taste. These changes in taste for colors have dangerous possibilities for any manufacturers or dealer in materials using color.

Color Surveys; Market Testing

The promiscuous introduction of new colors is fast giving way to a gauge of the public taste through color survey. This market testing, by largely eliminating the speculative element, reduces the risks of merely "guessing" at color tastes. Surveys have been conducted successfully on spring and summer suitings, on toiletware sets, on novelty Christmas trees, and on many other articles.

But careful planning of the color survey is really more important than the actual survey. Approaching the wrong people or in the wrong part of the country, or at the wrong season, or with an insufficiently representative range of colors, or a dozen more "wrongs," will be a waste of time and money; the results will be wrong too.

There is decided sales insurance to be had from information gained by the survey method, but here

—for Bleaching All Wood Finishes—

SAMPLES
to you without
obligation

USE Mac's Fashion Bleach, a one-application material that produces the most definite bleached effects desirable. Will bleach practically all woods to the natural white, even Mahogany, the most difficult of woods to bleach. No injurious deposits are left on wood surfaces or in the pores. Dries in two hours, ready to sand, with final procedure in usual way. Let us service your needs. Request samples!

The Lawrence-McFadden Co.
Headquarters for Fine Finishes for 62 Years!
PHILADELPHIA Established 1875 CHICAGO

MAC'S one application
FASHION BLEACH

especially is it true that "a little knowledge is a dangerous thing."

To achieve continued success in this constantly changing mass movement in color choice, manufacturers are obliged to keep abreast of the consciousness of the color consumer.

Color Engineering

To accomplish this consistently and efficiently, industry has adopted color engineering. With this help, a trend is maintained toward small and more active inventories. It has long been known that competition along lines of price, quality and workmanship has proved too limited, too profitless. It has served to stifle the opportunity to excel. There is, however, no limit to the variety of style combinations which the imagination is capable of creating with color.

We have learned comparatively recently that new, smart and attractive merchandise sells easier and at a better price than that which is merely useful or cheap. In all this the correct color has become the most important single factor, affording as it does an easy low cost escape from standardization.

Illumination can never be completely effective with just the sun or artificial light sources. Here again color engineering can apply remedial measures that are simple but effective.

Interior illumination is benefitting by researches into the optical values of light of varying intensities, brightness, reflection factors and colors. The relative merits of indirect, semi-indirect and direct lighting is being investigated.

When it is recalled that practically every type of merchandise

CASE GOODS MANUFACTURERS

GIVE THIS NEW LACQUER

. . . a workout

A one coat spraying lacquer for bare wood, or over stain, that dries quickly — producing a fine build and velvety waxy finish.

HAYNES DRAWER COATER CLEAR LACQUER No. 7469

It's new, quicker, better. Give it a thorough test. If trial order doesn't measure up to expectations, return balance for credit, express collect.

ORDER 5 GALLONS AT DRUM PRICE

Write for Price and Full Information

HAYNES LABORATORIES
INCORPORATED

Manufacturers of
INDUSTRIAL SYNTHETICS, LACQUERS, STAINS, VARNISHES

Chandler St. Springfield, Mass.

FLOCKS

Wool - Cotton - Rayon

- In All Colors
- For All Equipment
- For Every Purpose

SUITABLE FOR:

Rubberized Fabrics—Flock Printing—Velour Paper—Moulded Plastics—Spray Gun Equipment (For Woods, Metals, Paper and Glass)

Let us help you develop or reproduce that special effect or color tone. Send us sample or description of what you need.

MYERS - LIPMAN
Wool Stock Co., Inc.
283-287 W. Broadway, New York
Pioneer Manufacturers Since 1875

CROWN
NUMBER 20
SPRAY GUN

It's
Ahead!

Ahead in design—ahead in operating features—the new Crown No. 20 Gun is sweeping the field! New "Uni-Flo" Spray Head gives finer atomization, greater speed. Spray width adjustment in combination with pressure control ON THE GUN! One piece Fluid Needle Valve assembly instantly removable. Rugged, yet simple in construction; light weight; accurately balanced to eliminate fatigue. Write today for full details.

CROWN
SPRAY GUN
MFG. COMPANY

Warehouses in Principal Cities

1218 VENICE BLVD., LOS ANGELES, CAL.

has its own light absorption factor, it is a logical step to realize that the same illumination that is adequate for a fur department would not show off rugs, upholstered furniture or linens with the same effectiveness.

Department stores are notoriously improperly illuminated—causing the greater return of merchandise, inability to match colors, marked drops in clerk efficiency, and other ills. But, department stores are not the only offenders, for specialty shops, drug stores and book stores also raise sales resistance by failure to correct faulty illumination.

Color in Advertising

In advertising, too, color will soon be coming into its own. Even a casual glance through almost any publication will prove convincing of the degree to which advertisers rely upon color today. As related to words, color can either emphasize the truth or insinuate a contradiction. However, I find blues, browns, and greens being used in current periodicals to advertise foods—unnatural complexion colors advocating cosmetics—black and white photographs trying to describe the beauties of color in a product.

We react psycho-physically to the mental image as well as to the physical vibration of color—and color, being an elemental experience from the standpoint of racial heredity, at once produces emotions as subtle as they are profound. We have been doing it subconsciously for many centuries.

Color's Effect on People

Primitive man knew when fruit was ripe—not by hearsay—not by printed words—but by color alone. There are scores of color associa-

tions indelibly stamped on the pattern of our racial subconscious. Thermal impressions are definitely associated with the red of fire. Purity with the blue of the sky, frigidity with the dark blue of night. Freshness with the greens of vegetation. Gaiety and light with the golden hue of sunlight.

Color affects the appetite. Picture in your mind a meal of meat, potatoes, bread, coffee and ice cream. Now when you have that all fixed in your mind's eye, suppose I place before you a plate of green potatoes, yellow meat, blue bread, purple ice cream and grey coffee. Do you think you could eat it? Color helps idea association and is a necessary requisite for securing the illusion of reality and force in its scenes.

In advertising, too, much dependence has been placed on the printed word. Our color reactions antedate by many thousands of years our use of the printed words. Colors should be used in advertising in proportion to their power to move people.

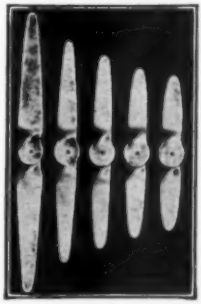
Color Comes of Age

Yes, color comes of age. But, its growth has hardly started. We shall see colors making life more pleasant, keeping us in better frame of mind, guiding us along colored concrete roads where sign posts are unnecessary. We shall see color engineering rising to an acceptance such as is accorded engineering in bridge building, sky-scraper construction, automotive development and chemical and technical control of thousands of products and processes.

The validity of the specific response which color evolves, makes it an active and aggressive factor in promoting the sale of fountain pens, the happiness of women, and so forth.

Functional validity, appropriate-

NEW LOW PRICES



16-in.....$2.00
18-in..... 2.25
20-in..... 2.50
24-in..... 3.00
28-in..... 3.50
30-in..... 4.00
36-in..... 6.00

Made of Nickel Alloy Aluminum. Machined — Finished — Balanced. Guaranteed in every respect. Send for descriptive circular and new low price on Complete Fans or parts to make any size exhaust or ventilating fans.

UNIVERSAL MANUFACTURING CO.
324 W. 10th Street Indianapolis, Ind.

ONLY ARCO MAKES
DUM DUM
THE ARCO COMPANY • CLEVELAND • LOS ANGELES

ly enhanced through significant color treatment is a factor of leadership that is enabling certain firms to outstrip their less artful—less colorful—rivals.

Automotive Finishing

SOME HIGHLIGHTS on automotive finishing in an outstanding modern plant, as revealed in an article published in *Automotive Industries*, are as follows:

Spray booths in the paint shop are of down-draft hydro-filter type, in which the atmosphere is so free of fumes that operators can work comfortably without the aid of masks or other protective devices.

Experimental work is now in process to develop a method of salvaging the over spray of the synthetic enamel pigment. In the body spray booth the most promising method is the use of a curtain of high-flash low-viscosity oil circulating down a panel along one side of the booth. This washes the overspray into a trench from which the entire contents can be dumped into a salvaging tank. After a short period of time the solids settle to the bottom of the tank in the form of a sludge which can be readily removed.

It is a characteristic of the synthetic enamel finish used that the baked surfaces have a high gloss which requires no further polishing or handling. These surfaces are carefully protected from the time the body leaves the paint shop to the time it leaves the factory door mounted on a chassis. To this end, all bodies and sheet metal parts go through the shop in canvas covers built to fit the various units. These "overcoats" are put on in the paint shop and are not removed until bodies reach the final inspection station.

To anyone familiar with synthetic enamel finishes, it is of interest to find that the product of this paint shop is a fine glossy

MASKALACO
A MASKING PASTE
Use in multicolor lacquering, painting, enameling, screen processing, etc. Striping and decorating more effective — less costly — with MASKALACO. Write for details and sample.
CLEAVELAND
LABORATORIES & MFG. CO., INC.
445 Wilson Ave., Newark, N. J.

Mall GRINDERS
SAVE TIME AND MONEY, AND STEP UP PRODUCTION
There is a model of MALL grinder with the appropriate attachment for every polishing and grinding application. Consult our Engineering Department who will gladly recommend the type of unit best suited for your work.
MALL TOOL COMPANY
7744 South Chicago Avenue Chicago, Illinois
Offices and Distributors in all Principal Cities

surface relatively free of visible orange-peel effect. This is not accidental. It is the result of painstaking care in the production of metal stampings as well as the precise control of all the steps in the paint department.

The "A-Lac-O" Process

A process known as "A-Lac-O," whereby Maskalaco masking paste for use on railroad cars, trucks and auto striping, and all sorts of decorated products where two or more colors are used, has been brought out by Cleveland Laboratories & Mfg. Co., Inc., 445 Wilson Ave., Newark, N. J.

The A-Lac-O process is a method of finishing products of every description whereby the trim or decoration is applied by using Maskalaco masking paste and A-Lac-O lacquer. The decorative color is first sprayed over the entire surface; the decoration is then masked with Maskalaco masking paste, after which the background color is sprayed over the entire surface. As many colors as desired can be applied.

After the mask has been brushed on over the dry lacquer color, it may be allowed to set for a few minutes and then the next color coat may be applied. Colors must be allowed to dry one hour before applying masking paste over them. After all colors have been applied and the masking is completed, the article can be washed with a stream of water or with a sponge and water.

In using the A-Lac-O process it is usually better to apply light colors first. For best results, Maskalaco masking paste should be applied with hair quills of red sable, black sable, oxhair or gray squirrel.

The lacquer used should be sprayed over the mask at not over 40-lbs. air pressure. The air brush should be held 6 to 8-in. from the surface. If desired, the background color can be sprayed first and then the decorative copy can be cut in with masking paste.

Air Regulators; Filters

A letter from Tolman Mfg. Co., 17 W. 3rd St., Boston, Mass., states that:

Tolman dependable patented air regulators are now fitted with various size durable type filters, with all connections and outlets standard.

GRAINING PLATES

A wood grain finish places your product in the quality class.

●

AMERICAN ELECTROTYPE COMPANY

104 E. MASON STREET, MILWAUKEE, WIS.

McALEER'S Polishing Compounds

are made at

'Buffing Headquarters'

A PRODUCT FOR EVERY PROBLEM

Samples on Request

McALEER MANUFACTURING CO.

2431 Scotten Ave., Detroit, Mich.

Industrial FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing coats are applied with finishing equipment

Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
222 East Ohio St., Indianapolis, Ind.
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EDITORIAL

Use of Color on Industrial Products

Color in industrial finishing and decorating should serve the same purpose as color in art. It should attain beauty, strength and attraction. The color sensations transmitted to the human organism through the eye, can arouse feelings of satisfaction, warmth, cold, brightness, darkness, joy or despair . . . .

The selection of color or the separation of color for a designed product must be planned at the start. The color must be appropriate to the product and must be dominately expressed in the decorating. Color can be used to emphasize certain features of the design by balanced distribution, harmonious combinations, correct symbolic meanings, streamlined effects where desirable, and appropriate appeal to desired emotions.

Every product should be so designed and decorated that it will arouse pleasing and satisfying emotions. The growing need for an intelligent use of color in product design demands that modern industrial designers widen their knowledge to include as thorough an understanding of color as that of the artist—for the use of color on industrial products is real art, and it has been proved to be exceedingly profitable.

Enough Material on Hand for Your Finishing

Having enough materail on hand for your finishing requirements is a very important item—but have you a system working that will automatically take care of this? Elsewhere in this issue we publish an excellent article on the subject, by a man who is peculiarly well fitted in experience and position to reveal some very practical and timely information, and to suggest a number of worthwhile ideas to those who purchase and use industrial finishing materials. In his letter accompanying the article he says:

"You might be interested to know that two very large accounts which I handle have their supply governed by the methods

which I have described, but that instead of the accounts doing all the thinking, I have done it for them and govern my warehouse stocks accordingly. In the case of the one account I actually had to get the information on their requirements from their purchasing department and production superintendent. I might add that over a period of a year in which I have operated these plans, the customers have not suffered any embarassment on account of delivery delays, and that if I told you the names of these nationally-known concerns you would be surprised . . . .

"I'm sure you will appreciate the complex nature of a finishing material and that in spite of rigid control in the ingredients, it infrequently happens that a batch of finish made up according to formula will come out 'N. G.' (no good) which results in a manufacturing delay the length of which depends upon what is necessary to be done in reworking the batch to meet standards. The 'paint' business, like any other, when pressed to get out an order, may overlook some one little thing, but if the finish is not at proper body, or so forth, it will produce an inferior result. Where finish supply is more or less on a hand-to-mouth basis, the consumer puts a hard burden on the supplier by invariably asking for the impossible in the way of deliveries. Finishes cannot be 'slapped together'; neither can a mill or mixer be dumped simply to get some one customer's order into production ahead of something else. I believe that an editorial along this line would help the finish consumer as much as the finish supplier.

"In closing, you may or may not realize that the term 'automatic supply' used in my article has been taken from some of my army training. An army is said to fight on its stomach. There are certain items of supply such as food, forage, fuel and gasoline that are considered to be 'daily automatic supply.' Each division in an army has its quota for such items, the amount varying daily in accordance with the 'strength' returns for each day. The division quartermaster trains pick up at 'distributing points' the allotments of 'automatic' items for that day.

"Finish is just as essential to the finisher as food is for the troops, and it seems reasonable to expect that if the army can figure out how much spinach and vitamine B should be supplied to a division of men from day to day, a manufacturer of finished articles should be able to anticipate his requirements with an equal degree of precision."

Something to think about, Mr. Manufacturer.

Going to Extremes in Search of Something New

Furniture manufacturers, here's something for you to think about — something written, not by a hot-headed man who doesn't know what he's talking about, but by a very practical and observant lady who attends the big furniture exhibitions regularly. She says:

"To please the fickle vanity of a public that is constantly in search of new blood, manufacturers literally 'tear their hair' before each market trying to think of *something new*. It doesn't make any difference whether it is practical or comfortable or anything

else, so long as it is *new*. If you would walk through the exhibits and see some of the *new* things that are brought out each season, I think you would lose hope in the future of the industry.

"The latest catastrophe is the revival of Victorian. This period was, without a doubt, the worst period of furniture design. It is as out of keeping with our present mode of living as the horse and buggy; yet, in search of *something new*, the manufacturers revive this grotesque style. Whether the public is going to accept it doesn't seem to bother them. They take the attitude: 'If I build it, and the buyer is looking for something new, he will have no alternative but to buy it.' And, in reality he has no alternative—but the consumer has—and as a result it stays on the floor and Mr. Manufacturer goes around telling everyone how bad business is.

"Why do manufacturers have to go back 100 years to something like Victorian, or ahead to a modern that is so modern it is impossible, to strike a happy medium. There is plenty of inspiration in 18th century and French furniture to provide incentive for *new livable* styles—and there is plenty of room for something that is really new—not bizarre or grotesque."

She suggested that the Editor write an editorial on the subject, but who can write a more convincing, straight-from-the-shoulder editorial in fewer words than those just quoted? Not yours truly. And perhaps she's voicing the collective opinions of 100,000 or more other ladies in the land—all of whom select and buy about 90% of the furniture that is sold for homes.

"Selection Rooms" Replace Old Style Display Rooms

After all, the ultimate objective of designing, manufacturing and finishing products is to sell them profitably, so whatever will help to accomplish this end is of vital concern to the personnel of every manufacturing organization. And just as changes are taking place in designs, materials, manufacturing and finishing, so are they occurring in methods of stimulating interest in those products and in making the sales — or shall we say, in letting the products sell themselves.

Along this line we are advised of something new that has been developed by a nationally known firm that manufactures and sells fine plumbing and heating equipment, including the attractive fixtures and trimmings we see in modern bathrooms and kitchens. In New York City, this company has opened exhibition quarters where its products are shown in "selection rooms" — w h e r e the dealer-contractor can meet and serve his home-owner client desiring plumbing and heating fixtures or seeking new ideas in bathroom and kitchen arrangement—rather than in the conventional sales display room. Visitors find a great deal of space given over to model kitchens, bathrooms and powder rooms.

And in place of the usual model "set ups" of such rooms, these "selection rooms" are built exactly as they would be built in a dwelling, with ceilings the same height as those in the average residence, fully decorated and completely equipped, water and waste lines connected and working—everything to make the vis-

itor feel as if he were in an actual home. Guests can see and feel the fixtures and accessories just as if they were installed in their own homes, and as a result they are in better position to intelligently choose exactly the fixtures, furnishings and decorating that are individually suited to their specific requirements — not only from the utility and quality standpoints but also in the way of harmonizing color and design.

Some of the better stores are displaying furniture in this manner also, and at the home complete shows we see entire homes with gardens, lawns, garages and all accessories exhibited. It's a splendid educational idea for promoting sales of all the better quality products. More manufacturers in all lines will have to become interested in this trend, in order to profit by what is in store for the future.

The most effective way to help motorists avoid colliding with the rear ends of trucks on highways in darkness or dim light is to paint the rear ends of the trucks with alternate strips of yellow and black, placed diagonally, according to a survey made in the interests of public safety.

Attention

CASKET *manufacturers — and others*

NEWCO No. 1 Fine Compound is especially designed for machine rubbing and polishing of Caskets. Is also used extensively for tile board and all lacquer and varnish coatings. Burnishes the surface to a glass like luster that will not cloud. Used by leading manufacturers in the U. S. Write for samples.

H. & N. COMPANY

1310 E. 14th St. Cleveland, O.

WIDE WET SPRAY

Milburn Paint spray guns deliver a wide wet spray which speeds the job and produces a better finish.

Write for new catalog.

Alexander Milburn Co.

1402 W. Baltimore Street
Baltimore, Maryland

Pyroxylin Lacquers — Enamels — Insulating Varnishes—Baking Enamels

IMPERVIOUS PRODUCTS
FOR INDUSTRIAL USE
IMPERVIOUS VARNISH COMPANY
KOPPERS BUILDING, PITTSBURGH, PA.

Protective Coatings — Finishing Varnishes—Primers and Surfacers

ENAMELS IMPERVIOUS IVCO TRADE MARK PRODUCTS LACQUERS VARNISHES

Letters from I. F. Readers

(Continued from page 11)

quiry, but the address is not sufficient.—Tyre Bros. Glass & Paint Co., Los Angeles, Calif.

It is Carlos R. Rossi, Calle Dr. Jose C., Barbosa No. 7 (Antes San Jose) San Juan, Puerto Rico.—Ed.

Coating Machine

Will you put us in communication with manufacturers of coating machines? We wish to apply a coat of sealer to the top side of a 72x24-in. panel, and feel that we can roll it on better than spray it.—A. C. Co. (Fine Hardwood Panels).

Dummy Light Bulb Lacquer

Kindly indicate to us the name of the manufacturer of the gray lacquer mentioned on page 12 (Finishing 33,000 Dummy Light Bulbs, by D. A. Farrell and H. H. Miller) in the April 1937 issue of INDUSTRIAL FINISHING magazine.—K. S. Oil Co.

It is a product of The J. E. Harris Co., Wooster, Ohio (see our reply to a similar inquiry in May issue, page 8).—Ed.

Reliable

for

Color Control

BLANCHIT

L. R. Van Allen & Co.

P. O. Box 3610 Merchandise Mart Sta.

Chicago, Ill.

Crystallizing Lacquers

In March issue of 1936 INDUSTRIAL FINISHING, on page 14, there is an article by G. L. Nagel regarding shrivel, wrinkle and crystallizing finishes. It would be very much appreciated if you will send me this article. Do you furnish formulas for manufacturing crystallizing lacquers?—A. K. Lab.

We furnish no formulas for making lacquers or other finishing materials.—Ed.

"Durako"

What is "Durako" and who makes it?—B. Paint Co.

This is a wood finish manufactured by the Preserve Surface Co., Detroit, Mich.—Ed.

Spray Guns

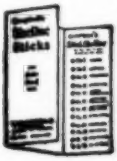
I am very much interested in the G. M. Spray gun, as briefly described and illustrated in Feb. 1937 issue, page 54, and I would appreciate your sending me the address of the company that handles this style of spray gun—L. T.

This is a product of the G. M. Mfg. Co., 216 Clinton St., Chicago, Ill.—Ed.

Please refer to your February issue of INDUSTRIAL FINISHING, page 43, "Kingbee Spraymaster." I shall be pleased to receive the name and address of the concern that is making that improved design of spraying equipment.—M. U. H. Co. (Spray Brush Equipment).

This is a product of O. Hommel Co., 209 4th Ave., Pittsburgh, Pa.—Ed.

STICK SHELLAC



Better than anything else for repairing imperfections in wood, marble, etc. Made in 70 colors to match all finishes. Write for FREE Color Card and descriptive Booklet.

THE M. L. CAMPBELL COMPANY

706 East 19th Street

KANSAS CITY, MO.